STRENGTH IN WAYS:

FINDING CREATIVITY IN ROUTINE STRATEGY DEVELOPMENT

BY

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APPROVAL

The undersigned certify that this thesis meets master's-level standards of research, argumentation, and expression.

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DISCLAIMER

The conclusions and opinions expressed in this document are those of the author. They do not reflect the official position of the US Government, Department of Defense, the United States Air Force, or Air University.

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Lieutenant Colonel Maykish served in command and control (C2) operations as an Air Battle Manager for Operations Desert Fox, Enduring Freedom, and Iraqi Freedom. After completing US Army Ranger School while at the 607th Air Control Squadron, he was assigned to the Joint Surveillance Target and Attack Radar System (E-8C JSTARS) from 2001-2006. In 2006, he was selected as initial cadre for a CSAF-directed rapid tactics innovation team at Nellis Air Force Base, Nevada. As the C2 and E-8 subject matter expert there, he flew in Afghanistan and Iraq every four months for three years to convert proven innovations rapidly into tactics and teach them across all systems and services to outbound operators. From Nellis, he co-authored C2, Cross-Domain, and JSTARS doctrine and co-chaired five theater-wide think tanks on subjects including counter-smuggling, counter-improvised explosive devices, and intelligence fusion with operations. Before attending SAASS, Lieutenant Colonel Maykish served in the Strategy Division (J5) of The Joint Chiefs of Staff, Washington D.C., as an Air Force Fellow. He holds a bachelor's degree from the University of Montana, a master's degree from Yale University, and a graduate certificate from the Stanford Center for Professional Development.

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ABSTRACT

Good strategy demands creativity but this can be a vague subject. To make strategic creativity more concrete for education, two methods are followed. The first is to present an overview of relevant aspects from strategic *theory*; the second is to conduct an interdisciplinary survey of various strategy-development *models* across a range of professions. The combination of the higher-level theory and the more ground-level models can clarify strategic creativity in practice, and thereby provide practical education for action officers assuming new strategy positions. The theory section can provide greater understanding; and the use of wide-ranging models, drawn across several disciplines, can help officers visualize real-world stages of strategy procedure and related considerations in strategic creativity. The theory and models, together, can make the creative aspect of practical strategizing more accessible and teachable. Altering our strategic culture along these lines, over time, may also provide an important shift to match larger national security challenges, including decreasing levels of funding in an era of globalizing complexity.

CONTENTS

Illustrations

Introduction

Imagination is more important than knowledge. For knowledge is limited, whereas imagination embraces the entire world, stimulating progress, giving birth to evolution. It is, strictly speaking, a real factor in scientific research.

Albert Einstein

Creativity has always had a place in strategy. Outnumbered about 300-to-1, Spartan King Leonidas used the narrow 'Hot Gates' of Thermopylae to make the Persian numbers 'count as none.'[1] Xerxes' force sent to Greece may have been the largest military expedition assembled in history at that time. And while we are told the Spartans died there to the last man, Thermopylae set the national tone to defeat Persia the next year in 479 BC at Plataea.[2] Not all of the examples are so well known.

On September 11, 1297, the Scottish infantry of William Wallace defeated a cavalry head-on in equal ratio for the first time in European history at the Battle of Stirling Bridge. To win, Wallace strategized an unforeseeable combination of surprise engineering feats on Stirling Bridge to cut the British cavalry in half, handpicked men

"The Battle of Stirling Bridge" by Andy Hillhouse. Source: Reprinted with permission courtesy of Andy Hillhouse.

[1] Herodotus, Robert B. Strassler, and Andrea L. Purvis, *The Landmark Herodotus: The Histories*, 1st ed. (New York: Pantheon Books, 2007), 573, 7.177.

[2] Ibid., 591, 684. We are told Leonidas considered this stand a way to gain a future for Sparta (7.220.2-4). Later we see post-Thermopylae nationalism swell in the Greek army at Plataea and can infer that the legend of Thermopylae was some boon (9.38.2).

lurking in the water under the bridge, and the use of a confined battle space where the English horses could not move. Wallace devised this creative combination of strategic elements to effect a fate-altering turn in the long road toward Scottish freedoms.[3]

The Battle of Morgarten, Switzerland. Source: *Tschachlanchronik*, 1470, Wikimedia Commons. Reprinted in accordance with fair use.

Smaller forces defeating larger ones seem to highlight the triumph of creative *ways over means*. At Morgarten Pass in 1315 the Swiss channeled the Hapsburgs into battle near a frozen marsh where the heavier Hapsburgs broke through the ice in retreat and drowned in their armor by design. At Saratoga in 1778 revolutionaries combined sniper fire with leadership targeting in a fate-altering breach of battle norms. The United States (US) victory resulted in the French joining our cause for independence.

In 1940 German special operations forces (SOF) used gliders to land on Fort Eban Emael in Belgium. Then, instead of attacking fielded forces the SOF ran past the Belgians to dismantle the artillery with new shape charges. Onlookers could not imagine why men were running past them without attacking.[4] The Viet Cong combined the tactics of jungle warfare with principles of Mao's protracted war to make US technology 'count as none' in the jungles of Vietnam. In all these examples an enemy was confused when they experienced fate-altering anomalies that *never entered* their paradigm-laden imagination.

Finally, one day in September ten years ago nineteen men with plastic box cutters turned four airliners into guided missiles. They altered the political and military landscape of the world with material you could buy at a hardware store. It was a treacherous, unjust and illegal slaughter of innocent human beings from several nations.

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[3] Henry and William Hamilton, *Blind Harry's Wallace* (Edinburgh: Luath Press, 1998).
[4] Hugh Johnson Simon Dunstan, *Eben Emael: The Key to Hitler's Victory in the West* (University Park, IL: Osprey Publishing Ltc, 2005).

Unfortunately, it was also the most dramatic example of ways over means we have seen in our lifetime. To ignore this event in a thesis on creative strategy would seem indefensible. We were on the wrong side of a long pattern in history where creative ways trump means.

Throughout this work, the 'ends-ways-means' model serves as a recognizable framework for this inquiry about strategizing. Using this model, these military examples above highlight creative *ways* to use whatever *means* a group possessed to achieve its *ends*. My research focus was isolating the ways portion of this equation. The driving question became, how do we develop creative ways independent of means to achieve our ends? This inevitably led me to the subject of strategic creativity and the need to make this subject more concrete for practitioners. Other related questions I asked myself were, what is the anatomy of creative *ways* in strategy without resigning it all to the categories of genius or operational art? How do we know our ways are as creative as they *can* be before they are as creative as they *must* be? More importantly, can this kind of creativity be made more concrete to educate our practitioners?

While the introductory battles above are just samples of creativity in war, militaries are not collectively viewed as agile, creative organizations. In Kim and Mouborgne's *Blue Ocean Strategy*, military strategy is critiqued as inherently simplistic and limited by the concepts of competitors and terrain. This thinking is labeled "red ocean," which means locked into accepting, "the key constraining factors of war—limited terrain and the need to beat an enemy to succeed."[5] On the other hand, the creative "blue ocean" strategy makes the competition *irrelevant*. Perhaps we can view this calumny with disinterest since even the most basic military theory in Sun Tzu discusses winning without fighting (circa 400 BC).[6] Maybe this critique is rather an opportunity to ask, have western militaries collectively earned this reputation of uncreative 'red ocean' thinking in a *means-dominant* strategic culture?

[5] W. Chan Kim and Renée Mauborgne, *Blue Ocean Strategy: How to Create Uncontested Market Space and Make the Competition Irrelevant* (Boston, Mass.: Harvard Business School Press, 2005), 6, 7.
[6] Sun Tzu and Samuel B. Griffith, *The Illustrated Art of War* (New York: Oxford University Press, 2005), 115, 3-3.

Three Lenses to View Our Challenge

There are three ways to look at the need for this study. Each aspect can be used like a different lens to view a common problem about strategizing. These lenses represent macro (national) and micro (everyday work) levels of analysis.

Lens 1: National Current View

First, using a national view of our current situation, the insurgency wars in Afghanistan and Iraq caused us to question how we develop the right strategies. In the wake of books like *Fiasco* and *Tell Me How this Ends* and documentaries like *Restrepo*, it seems that we are still searching for a reliable strategic method. General Mattis declared this hunt still on when he stated, "By spending a lot of time up front getting [the problem] right, you don't invade a country pull the statue down and say, 'now what do I do?'"[7] What is this 'something up front' that precedes planning? Whatever it is, after two world wars, Korea, Vietnam, and a two-front irregular war, it appears we are still searching for 'it.'

In pursuit of a successful method to find the winning ideas before military planning, General Mattis first redirected the DoD away from effects-based operations (EBO) as a strategy development concept.[8] He viewed EBO as mechanistic and sensible only in closed systems but over-simplified for operations in open systems like Iraq (discussed further in chapter 3). One year later General Mattis re-focused the DoD on what was once called 'systemic operational design', then 'operational design' and now simply, "design."[9]

Design has generated a wellspring of Army, Marine and Navy literature for many years, but began spiking in 2006. But in terms of what 'it' is, the burgeoning literature of this paradigm continues to unfold in our day; it is an elusive subject. While General Mattis states "there is nothing new here,"[10] hundreds of US field grade officers are trying to clarify his 'it' beyond planning. Further, the draft *Joint Forces Command* (JFCOM)

[7] General James Mattis. 2010. Speech at the Center for a New American Security, February 18, 2010.
[8] General James Mattis. 2008. 14 Aug 08 Memo to Joint Forces Command.
[9] General James Mattis. 2009. 6 Oct 09 Memo on a Vision for a Joint Approach to Operational Design.
[10] Mattis, 2009. 6 Oct 09 Memo on a Vision for a Joint Approach to Operational Design.

Design Handbook was sent to General Mattis in 2009. According to one source, he was not satisfied and sent it back for substantial re-working.[11]

Recently, a meaningful lessons paper on design came out of Army Central Command (ARCENT) and it began by noting, "design still has significant gaps."[12] Since that statement, the Army School of Advanced Military Studies (SAMS) published a foundational work called the *Art of Design 2.0* that is an accessible, broadly-sourced contribution to the cause. Yet with *Fiasco*, *Tell Me How This Ends* and nagging questions of 'what is our strategy in Libya' all fresh in our minds, it appears that the hunt is still on.

Lens 2: National Future View

A second lens to view our challenge is a national glance at our future situation. Our national ends are expanding while our means are decreasing. When means are insufficient for ends, risk increases. We can think of this risk differential as ends – means = risk. If our means match our ends, the only risks are those inherent in any large enterprise: fog, friction, chance, enemy will and enemy ingenuity. If our means are smaller than our ends, we arrive at some delta we call 'risk' along a sliding scale from slight to great. As risk increases, the creativity of our ways must theoretically increase to account for the difference. So *expanding* ends and *declining* means may require more *creative* ways to account for the difference in the risk equation. To consider this challenge, we must first understand what expanding ends and declining means look like in reality. Then, we can add how inherent uncertainty about the future increases the drama of our risk equation.

Secretary Robert Gates laid out the above equation in his farewell address. Ends are expanding due to global complexity and the role we play in the world. At the same time, we must adjust "to an era of debt and austerity at home." Due to our financial realities, Secretary Gates asserted there will be an "inevitable flattening and eventual decrease of the defense budget." The means part of our equation is also worsened by

[11] Now published. Joint Warfighting Center, "Design in Military Operations: A Primer for Joint Warfighters," in *JWFC Doctrine Pamphlet 10*, ed. Joint Warfighting Center (Norfolk, VA: Joint Forces Command, 2010).
[12] Trent Mills, "Applying Design at Us Army Central/Third Army: What Theory Recommends and What Reality Demands," in *Unpublished white paper* (2011), 30.

aging capabilities run down by war and lack of recapitalization. Thus, he concludes the ends portion of our equation must change since "a smaller military, no matter how superb, will be able to go fewer places and be able to do fewer things."[13]

The military challenge of this altering national security equation becomes clear. First, as a planning variable, the military does not control national ends. Second, the 'American Way of War' has been dominated by the principle of mass (Weigley, *American Way of War*) or 'out-teching' enemies (Singer, *Wired for War*).[14] Yet both mass and technological advantages are *costly*. Sharply declining budgets could present grand strategic problems if we cannot afford our two normative stratagems for winning wars. Thus, it is not hard to see where we are going. This expanding difference between national ends and means will demand--now more than ever--that our *ways* account for the delta. How do we do this? How do we methodically ensure we have a winning idea to succeed in all situations as a military instrument of national power? In 2011, we are still searching for the answer.

An equation of expanding ends and declining means is further complicated by inherent strategic uncertainty about the future. This uncertainty presents a force structure paradox that has been observed many times before. During the Cold War, the USAF's tactical air command (TAC) was in decline at the expense of Strategic Air Command's rise (SAC). Conrad Crane laments how SAC was focused on the Cold War threat of the USSR but Korea demanded capabilities inherent to TAC. Thus, Crane highlights, "wars rarely come when or how you plan for them."[15] In Bernard Brodie's work on strategy in the missile age, he dramatically captures the same paradox this way: "wars are the graveyards of the predictions concerning them."[16] If we are terrible at predicting the future, then we won't likely have the means correctly tailored to the wars we'll have to fight unless by chance. This hints that we may need an uniquely creative strategic culture.

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[13] Robert M. Gates, Secretary of Defense (address, American Enterprise Institute, Washington D.C., 24 May 2011.
[14] Colin S. Gray, *The Airpower Advantage in Future Warfare* (Maxwell Air Force Base, Ala: Air University, Airpower Research Institute, 2007), 32.
[15] Conrad C. Crane, *American Airpower Strategy in Korea, 1950-1953*, Modern War Studies (Lawrence, KS: University Press of Kansas, 2000), 22.
[16] Bernard Brodie, *Strategy in the Missile Age*, New RAND ed. (Santa Monica, CA: Rand Corp., 2007), 406.

Among contemporary assessments, the 2010 Joint Operational Environment contains a global strategic context table describing the world in 10-year increments starting in 1900 up to the present day (see Figure 1).[17] It shows a departure of reality from prediction in mere ten-year blocks that is both shocking and enlightening. Finally, last year Secretary Gates presented the 2010 budget with due respect for this paradox. As he rolled back the "two major combat operation (MCO)" force-planning construct he also spoke about unknowable futures stating, "we have learned through painful experience that the wars we fight are seldom the wars we planned."[18]

Thus, among these thinkers we find what may be called the many-possible-worlds paradox: anyone who plans for a *specific future* is simultaneously not planning for an *unknowable future*. But a culture of strategic creativity can be a buffer against means mismatches with future realities. Uncertainty serves to increase the drama on a stage of expanding national ends and declining means and highlights the premium we need to place on strategic creativity in our ways to face any end with whatever means we have.

[17] *The Joint Operational Environment 2010* (United States Joint Forces Command). 18 February 2010, 9.
[18] Robert M. Gates, Secretary of Defense. "DoD News Briefing with Secretary Gates and Adm. Mullen from the Pentagon," Washington D.C., 1 February 2010.

Fig 1: "Strategic Estimates in the Twentieth Century." Source: United States Joint Forces Command. "The Joint Operational Environment 2010." edited by Joint Futures Group (J59). Norfolk, VA, 2010, 9.

Lens 3: Current Micro-Level View

A third lens for viewing our challenge is the void in practical strategy development education for AOs serving in strategy jobs DoD-wide. Military officers often spend a lifetime of formal and informal education in military history and theory. Yet, unless we graduate from the relatively small population of formal strategy schools, our general military education often lacks specifics in *how to* practically develop a strategy.[19] Since they are the custodians of our ways, this presents a problem.

In the DoD, AOs across the world are thrust into strategy jobs often without the opportunity for formal education in strategy development and theory. We send our best and brightest to strategy jobs and hope their experience and instinct meet the challenges they face in the world of ideas—often they do. Yet to promote greater strategic creativity in the full-spectrum of strategy AO work, there is no single-source primer for educating them about making a strategy—to think as much or more about *ways* than they do *means*. In the absence of formal education in strategy development, AOs must successfully rely on their experiences, common sense, intuition, scattered strategy readings from past professional military education (PME), and the sound staff processes around them.

At the Joint Staff, these action officers often receive quality immersion training in action officer skills *per se*. When my own immersion was complete I wondered if strategy AOs could also benefit from immersion in principles of strategy development too. If so, what condensed primer would we use to provide that education?

I've spent much of my military career asking this source question inside and outside the beltway with no clear answer. This has led me to an interdisciplinary analysis of strategizing to search for a reference to help educate practitioners. In the sea of strategy literature I searched for "how to" works that also had an emphasis in creativity. Two difficulties presented themselves to my effort. The "how to" can be a divisive subject and the creativity part, can be treated as a black box. A practical combination of

[19] The Joint, Air Force, Army, Marine and Navy formal advanced study schools in the US are the Joint Advanced Warfighting School (JAWS), School of Advanced Air and Space Studies (SAASS), School of Advanced Military Studies (SAMS), School of Advanced Warfighting (SAWS), and Maritime Advanced Warfighting School (MAWS). The aims of these schools vary from developing operational planners to cultivating a repertoire of strategic thought. These are the schools devoted to advanced warfighting and as such, serve as our de facto network of strategy schools.

both seemed to be what we needed to support creative strategy development. But why look to other disciplines to build a modest educational piece in strategic theory with an emphasis on creative ways in strategy development? Aren't current military methods sufficient to provide this kind of education?

Documented military strategy methods are not tailored to the full range of strategy applications in military affairs. Namely, Operational Design (OD), the Joint Operational Planning Process (JOPP) and the Military Decision Making Process (MDMP) are our *de facto* formal methods for strategizing. However useful these methods are, if they are used to develop a strategy at any level, they can narrow creative thought by being problem-centered. Further, there is a vast amount of strategy work to be done that does not fit neatly into employment or campaign planning language. AOs face strategy work of a non-employment nature ranging from organizational transformation, coalition building, future visions, developing concepts of operation (CONOPS), proactive leadership taskers, developing agendas for military-to-military events, plans for foreign military sales, force construct guidance, or urgent strategizing for new evolutions like spacepower, cyberpower and strategic communications in the information age.

Furthermore, AO work in strategy is increasingly incorporating a whole-of-government (WoG) approach. While OD, JOPP and MDMP could be applied to the WoG concept, the official publications are not clearly tailored for such work at this time. While there is no informal substitute for formal strategy education, an interdisciplinary primer to guide strategic creativity may help support the innate abilities of action officers devoted to short-term strategy positions throughout the DoD. An interdisciplinary primer may be better suited for the kinds of strategy work in which AOs find themselves. When faced with a difficult strategy scenario, AOs don't pull down a guide to MDMP or the JOPP. So what can we use to educate the bright and energetic stream of un-indoctrinated AOs flowing into our strategy jobs? This is a third way to think of the challenge before us regarding a shift toward the creativity of our *ways* vice the dominance of our *means*. How have we educated our AOs to be creative with our ways?

To sum, through lens one it appears we are still searching for a reliable strategic method in light of the 9/11 wars. Through lens two, it appears we will need more creativity in ways as our ends expand while our means decrease relative to the world.

Through lens three, the part of this picture we can reasonably affect is the strategic creativity of our own action officers who in the main, go to work without formal education in strategy development methods. There appears to be no single work to provide familiarization with creativity in strategic methods and perhaps there can be no such work. However, my hypothesis is that an interdisciplinary analysis of strategic development across the professions may yield a helpful work of background theory on creative ways for AOs who contribute to the overall enterprise of our national security strategy.

Together, these three lenses provide compelling reasons why creativity in our ways may deserve more attention in modern strategic theory. We once thought intuition was a subject beyond academic analysis. Now, books like *The Gift of Fear* by Gavin DeBecker and *Blink* by Malcolm Gladwell make the subject of honing our intuition more concrete for study. Perhaps the same can be done for strategic creativity. With works like *The Opposable Mind* by Roger Martin we are on our way.

The Argument

Our challenge viewed through all three lenses demands greater creativity in strategy development. However, strategic creativity can be a vague subject. So if strategic creativity is both needed yet vague, it is important to look for methods to make this subject more concrete for the sake of educating practitioners.

I chose two methods to make strategic creativity more concrete. This paper will first gather and clarify relevant theory about creativity in strategy. Moving from general to specific, I will present ten theory subjects that get increasingly specific about practicing creativity in strategy development.

Secondly, this paper will synthesize twenty-one purposeful activity models from across the professions. Some of these models also serve as--express or implied--strategy development models in their respective contexts. Other models are only conceptually related by commonality in stages. The purpose of comparing the models is to isolate and study the key normative stages where creativity has the greatest potential to alter the 'ways' portion in strategy.

I argue that the theory and model chapters both show our current strategy development methods are weak precisely in the key creativity stages where clarity is most needed based on our challenge. Yet, if any works make strategic creativity more understandable, then this can be one modest step toward addressing our challenge as viewed through all three lenses above. [20]

Why Pursue an Interdisciplinary (ID) Analysis for Answers?

Strategy in its most basic form is an idea about how to succeed. For strategists to succeed, they must apprehend and craft reality. This is central to what they do. Engineers make things. Doctors heal patients. Bankers manage money. Poets capture meaning. Strategists craft reality.[21] To do so, strategists use ways (strategic concepts) and means (resources) to craft how ends become reality (objectives).[22]

This simple form of strategy—apprehending and crafting reality to succeed—is how the subject gets transported from the football field to the battlefield; from Wall Street to Main Street. Whether someone is leading a campaign into Afghanistan or taking over EBay they have this one thing in common: they both must engage in a cognitive process of strategizing how to succeed in a large enterprise. At this most basic level of 'how to succeed' in achieving ends, it seemed useful to research what is common among the disciplines that have developed a discourse on strategizing. Chapter 1 will place this analysis among the definitions of strategy to clarify the context and avoid dilution of terms.

Yet comparisons among the disciplines can be hazardous. There is no way to compare losing a State Championship, 20% market share or 1,000 men in battle. Nevertheless, this one thing unites everyone who embarks on a large-scale enterprise: they must develop an idea about how to succeed by apprehending and crafting reality. In the purest sense this is what strategy is about and most disciplines have documented their

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[20] J. C. Wylie, *Military Strategy: A General Theory of Power Control*, Classics of Sea Power (Annapolis, Md.: Naval Institute Press, 1989), 30. This positive impact of improving strategy development by analyzing theory was captured by J.C. Wylie who wrote, "More thorough recognition and appreciation of the several patterns of thoughts that make up our military minds would probably produce better strategies."

[21] All professions influence reality. Military strategists however purposefully seek to alter reality on a large scale through the use and threat of force.

[22] Harry R. Yarger, *Strategy and the National Security Professional: Strategic Thinking and Strategy Formulation in the 21st Century* (Westport, Conn.: Praeger Security International, 2008), 155, 56.

views. In light of this general definition for strategy we can assess why an interdisciplinary approach is favored for this thesis.

To those outside the military, the transferability of ideas hardly needs to be established. But within the military there will be purists who find it hard to believe we have something to learn from the other disciplines. Few may be so bold as to say this out loud in debate, but it is a widely held belief that it is a stretch to compare military strategy with other disciplines. There are of course exceptions. The USA's operational design school has appealed to architecture for hints on the essence of design. The founder of our operational design movement himself, Shimon Naveh, is very broadly educated and has recently partnered on a broad, philosophic work on design.[23] There are a few reasons to believe why a liberal, broad view of sources among the professions may be helpful.

First, our 21st century action officers have very diverse educational backgrounds. On my left is a music major. On my right is an astrophysics engineer. As such, like fingerprints, everyone's mind may work a little differently. A military action officer with an engineering background may need the engineering angle to prepare for strategy work. Likewise, an action officer with a business education may be more comfortable with the transfer value of business strategy to their military tasks.

Second, strategy employs meta-disciplines like "design" and "systems thinking" that allow transfer of concepts across professions. A meta-discipline is a cognitive practice that transcends any one profession--such as logic, design, and systems thinking. Peter Checkland describes this as "a subject which can talk about other subjects… whose subject matter can be applied within virtually any other discipline."[24] Meta-disciplines act like a bridge between professions where concepts are transitive via one or more meta-discipline. Thus, meta-disciplines lend to comparisons of strategy theory across various professions. Is it possible one profession has developed certain meta-disciplines more thoroughly than another profession? If so, perhaps the development of meta-disciplines in various professions can be beneficially transferred and synthesized.

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[23] Jim Schneider Naveh Shimon, Timothy Challans, "The Structure of Operational Revolution: A Prolegomena," in *Booz Allen Hamilton Inc.*, ed. Allen Booz, Hamilton (Washington DC: Center for the Application of Design, 2009).

[24] Peter Checkland, *Systems Thinking, Systems Practice* (Chichester Sussex; New York: J. Wiley, 1981), 5.

A third benefit is new eyes or vistas from ID analysis. Psychologist George Stratton performed a study in 1897 where subjects wore inverted glasses for a number of days forcing them to see the world upside down. In less than three days their brains adjusted and viewed images right side up through the same glasses. To everyone's' horror, when the subjects removed the inversion glasses, the world was upside down through their normal eyes! Fortunately, in a few days, their tired brains once again mocked at the game and turned the world right side up.[25] Sometimes when you stare at situations from within your discipline, that is all you can see. An ID study of strategic theory may help us see things with new eyes.

Finally, several authors have left notes behind like a bread-crumb trail leading to the significance of the ID approach. In international relations Alexander Wendt wrote, "success means the ability to predict things that were not objects of an original theory (novel facts), and to unite previously distinct bodies of knowledge."[26] Uniting previously distinct bodies of knowledge can produce a new perspective unavailable to the confines of a single discourse. In information theory, Adam Brate notes that the information revolution itself only came about through ID fusion.[27] Antione Bousquet's journey into the scientific way of warfare led him to an appreciation of the ID approach, calling it the "nexus of ideas and practices."[28] Grandmaster of strategy theory, Thomas Schelling, stressed an ID approach to strategy. In his *Strategy of Conflict* he saw an ID mixture of six elements. "There is something here that looks like a mixture of game theory, organization theory, communication theory, theory of evidence, theory of choice and theory of collective decision."[29] Thus, an ID analysis appears to be a sound place to start.

Which Disciplines Can Be Compared?

I used six inclusion criteria to determine which disciplines could support this ID approach. First and foremost the professions possess methods we can call *purposeful*

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[25] George M. Stratton, (1897). "Upright Vision and the Retinal Image". *Psychological Review* **4**: 182–7
[26] Alexander Wendt, *Social Theory of International Politics*, Cambridge Studies in International Relations ; (Cambridge, UK ; New York: Cambridge University Press, 1999), 62.
[27] Adam Brate, *Technomanifestos: Visions from the Information Revolutionaries* (New York: Texere, 2002), 2, 4, 8.
[28] Antoine J. Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity* (New York, NY: Columbia University Press, 2009), 14.
[29] Thomas C. Schelling, *The Strategy of Conflict* (Cambridge,: Harvard University Press, 1960), 14, 15.

activity models. Each profession follows some general pattern of setting out to achieve some purpose that has a beginning and an end. These purposeful activity models can also become *de facto strategy development models* even if that connection is implicit. Seeing this de facto relationship is aided by accepting a broader view of strategizing as crafting creative *ways* to use means to achieve ends with a tailored strategy at any level (discussed in Chapter 1). Thus, even if a profession doesn't have a strategy development model of their own they probably possess a purposeful activity model that performs similar functions, as shown in Chapter 4.

A second criterion is the *existence of a strategy discourse*. In some cases finding a strategy discourse is as easy as asking which professions discuss "strategy." This makes analysis easier by bounding the subject matter as something in common across disciplines even if definitions of strategy vary. Where a discipline sets subject matter with the label "strategy," I included it in my analysis. The clearest example of this is the universe of business strategy literature—a discourse that expands at a daunting pace.

Third, I looked for disciplines that share previously discussed *meta-disciplines* as crafts like 'design' and thus have comparable discourses. Peter Checkland, for example, calls systems thinking such a meta-discipline.[30] And many communities have worked on theories of general problem solving. Meta-disciplines like design, systems thinking and problem solving have been a natural place to look for common elements of strategy theory.

Fourth, I looked for 'normative' literature in professions. "Positive" literature deals with "what is" while "normative" deals with "what ought to be" (as in what ought to be "norms"). Specifically, I looked for the cognitive work that deals with what ought to be regarding ideas for success or winning. For example, polymath Herbert Simon described the concept of "design" along this line: "The natural sciences are concerned with how things are… design… is concerned with how things ought to be."[31] Literature that deals with what ought to be is one way to find ideas about success or winning.

A fifth way to scope ID strategy theory is by looking for what cognitive work precedes planning. As mentioned previously, there is not always a clear line between

[30] Checkland, *Systems Thinking, Systems Practice*, 5.
[31] Herbert A. Simon, *The Sciences of the Artificial*, 3rd ed. (Cambridge, Mass.: MIT Press, 1996), 114.

strategy and planning; whole books are devoted to this confusion. In Mintzberg's *Rise and Fall of Strategic Planning* he ultimately critiques the very concept of "strategic planning." He wrote, "there must be other ways besides planning to make strategy."[32] In military circles today, we recognize this critique as saying we too have failed to identify the cognitive work that precedes planning. This has created the new military field of Operational Design (OD) to be discussed later. Mintzberg concludes in another work, "planning is about analysis, strategy is about synthesis. And analysis cannot produce synthesis."[33] Thus, as previously mentioned, the line between strategy and planning is being drawn--however faintly--in our day. This will be discussed further in Chapter 1.

Finally, at an elemental level of analysis, practitioners in each discipline share the need for conceptual approaches to achieving ends. If "strategy," "success," or "winning" are not clear in the literature, anything pertaining to achieving an end may provide material for analysis. Said another way, every profession has a concept of crafting success even if it is not called that. The most basic commonality about strategy is the idea of *how to succeed*. This is where life on a football field, battlefield, or floor of the stock market seems transcendently similar. Strategists in each profession are trying to determine how to succeed at their large-scale mission. Strategy is the way they do so.

Methods

I bound sources by these six inclusion criteria above. The delineation between the professions is not always clean. For example, Herbert Simon was a polymath who started in political science, devoted much time to psychological applications for artificial intelligence, received a Nobel Peace prize in economics and is also sourced in business strategy literature.[34] Where do you put him? For reasons that I explain later, I use a portion of his work that gets elemental about design and, as such, is used in engineering departments.

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[32] Henry Mintzberg, *The Rise and Fall of Strategic Planning: Reconceiving Roles for Planning, Plans, Planners* (New York Toronto: Free Press; Maxwell Macmillan Canada, 1994), 19.
[33] ———, *Tracking Strategies: Toward a General Theory* (Oxford ; New York: Oxford University Press, 2007), 375.
[34] Henry Mintzberg, Bruce W. Ahlstrand, and Joseph Lampel, *Strategy Safari: The Complete Guide through the Wilds of Strategic Management*, 2nd ed. (Harlow, UK: FT Prentice Hall, 2009), 157.

Another apparent gray area could exist between business and economics literature. Yet, not only have the fields produced theory unique to themselves like "game theory" in economics and "blue ocean strategy" in business, they each have a different focus. Businesses produce goods and services while economists focus on the market dynamics in which businesses and governments do so. They have different departments in universities, different discourses, different degrees, different heroes and often, different ambitions.

Further, there are other disciplines that *could* be used in this survey. Along the way I simply searched for a discourse within that discipline that clearly matched my inclusion criteria. I'm interested to continue looking in other fields for transfer value. First, the history and philosophy of science has a rich discourse that may have solid transfer value. Second, within science one could look at the fundamental problem solving methods of mathematics such as Herbert Simon's "Models of Thought." Third, within design there are burgeoning sub-discourses. One massive example I found was in the area of computer science and software engineering. Could further comparative analysis of these disciplines yield useful transfer value that transcends profession? From my preliminary research of these disciplines my guess is yes. But the tyranny of time, the wisdom of my committee and limits of my own competence compel me to bound the disciplines using my inclusion criteria and available literature.

The goal of these methods is to determine what is common in strategizing among various disciplines by isolating what is elemental about the work of creating strategy. The methods used in this study include comparative analysis and functional synthesis. Comparative analysis will be performed using the earlier mentioned inclusion criteria. Functional synthesis will involve determining what strategy methods or aids are comparable based on serving a similar function in a different discipline. With these two methods, the general body of evidence explored is strategy methods in the disciplines of matching ways and means to ends. The disciplines studied include an interdisciplinary analysis of secondary sources in business, defense, business-defense hybrids, economics, engineering and architecture/design.

In closing, there are four important caveats to my subject. The spirit of this work is to support strategy methods without being formulaic about strategic thinking. In

military theory, key authors can be used to show the poles of this tension. Jomini has often been described as using a formulaic approach to war as if to conclude, 'if we apply these principles we will win.' On the other hand, Sun Tzu is more ethereal. It is difficult to read the beauty of Sun Tzu and say, "ah, here is his formula" or, "here is his thesis." Clausewitz can be described as the middle ground. He repudiates formulas[35] and yet asserts numerous principles. In fact, he states up front that, "It is a very difficult task to construct a scientific theory for the art of war, and so many attempts have failed that most people say it is impossible, since it deals with matters that no permanent law can provide for. One would agree, and abandon the attempt, were it not for the obvious fact that a whole range of propositions can be demonstrated without difficulty."[36]

Peter Checkland's work on systems methods led him to describe this balance as "moving round the mosaic of stages flexibly."[37] In another place he clearly warns, "unfortunately no methodology can claim scientific status."[38] So the overarching aim is to add a creativity aid to strategy theory for AOs by using theory and models within which creativity takes place, without becoming formulaic about strategy in the process. In addition to the formula trap, creativity in strategy also begs questions about the role of genius, operational art and strategic thinking.

On genius, I've never met parents who have a satisfactory explanation for the innate differences in the personalities of their children. Parents often smile thinking about the differences in the apples falling from their trees. Mystery is dropped amidst the clay. This theme is a brief intrusion on the nature/nurture debate to acknowledge military genius could certainly be a gift wherein no strategy theory is required. If that is true, there are four supporting reasons to continue with this study.

First, can a nation rely on genius being in the right place at the right time when the stakes are high? It is not even clear what percentage of our military corps have a genius for strategy to surmise if we can statistically rely on chance for this matching. Second, genius is not likely hindered by writings on clear methods. Even though

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[35] Carl von Clausewitz, Michael Eliot Howard, and Peter Paret, *On War* (Princeton, N.J.: Princeton University Press, 1984), 178.
[36] Ibid., 71.
[37] Peter Checkland and Jim Scholes, *Soft Systems Methodology in Action: A 30-Year Retrospective*, [New ed. (Chichester, Eng.; New York: Wiley, 1999), 79.
[38] Checkland, *Systems Thinking, Systems Practice*, 241.

Napoleon was a genius, Napoleon was still a voracious reader in military studies.[39] Third, if one is not gifted with strategy genius, we may become very talented—something less than gifted—at many things with hard work. This would introduce a third variable in the human development equation as nature/nurture/work. Hard-work-induced talent has sterling examples like Jerry Rice (sports), Thomas Edison (science) and Warren Buffet (business). Finally, even genius, of course, could benefit from being exercised through readings as a form of extra effort for the genius. Consider Churchill. He was an undeniably gifted communicator and suited for his national mission. Yet he was the same man extolling the benefits of hard work stating, "I have nothing to offer but blood, toil, tears and sweat" and "the nose of the bulldog is slanted backwards so it can breathe without letting go." He did not rest on his genius.

In addition to genius, creativity is often resigned to the subject of operational art. This subject has its own discourse and has even been expanded recently by names like Martin Van Creveld.[40] The origins of operational art have been tied to the emergence of the operational level of war between the days of Moltke and World War I.[41] Nothing in this thesis attempts to diverge from this broad subject. Simply, my research on practical creativity is geared toward the full-range of strategy work performed by our AOs, which is not confined to campaign planning nor the operational level of war.

Finally, creative thinking is but one part of strategic thinking. Harry Yarger notes five thinking competencies embedded in strategic thought: critical thinking, systems thinking, thinking in time (historical thinking), ethical thinking, and creative thinking.[42] To this we could add John Dewey's abstract thinking[43] and intuitive thinking as captured in *The Gift of Fear* by Gavin DeBecker and *Blink* by Malcolm Gladwell. By any account, creativity is just one aspect of strategic thought, but this is my focus based on our challenge.

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[39] Peter Paret, Gordon Alexander Craig, and Felix Gilbert, *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*, Princeton Paperbacks (Princeton, N.J.: Princeton University Press, 1986), 283. Napoleon's genius was so effective that Germany created a staff to somehow replicate his genius.
[40] John Andreas Olsen and Martin Van Creveld, *The Evolution of Operational Art: From Napoleon to the Present* (Oxford: Oxford University Press, 2011).
[41] G. Isserson, ed. *The Evolution of Operational Art*, 2 vols., vol. 1, The Evolution of Soviet Operational Art 1927-1991: The Documentary Basis (London: Frank Cass & Co. Ltd.,1932), 48-66.
[42] Yarger, *Strategy and the National Security Professional: Strategic Thinking and Strategy Formulation in the 21st Century*, 11-15.
[43] John Dewey, *How We Think* (Mineola, N.Y.: Dover Publications, 1997 (1909)), 138, 42.

Roadmap

This analysis is split into two main parts. Chapter 1 reviews and adapts theory pertaining to creativity in strategy. This chapter provides definitions, framework, and key propositions about 'ways' in strategy, theories of action, and strategic content.

Part two transitions away from theory to routine strategy development models across the professions. These chapters survey purposeful activity models within which creativity can take place. This is consistent with the idea that creativity in strategy happens within a context or system of domains and fields.[44] While the system itself is insufficient to guarantee creativity, it is key to setting the conditions within which strategic creativity can take place.

Chapter 2 specifically surveys methods of the commercial professions: engineering, business, architecture, and economics. Chapter 3 surveys methods of the military profession and one hybrid model from Colonel (retired) John Warden from his work *Winning in Fast Time*. Chapter 4 will present a synthesis of the various methods with a highlight on which stages strategic creativity is most critical in the process of shaping our ways. Chapter 5 discusses take-aways on strategic creativity that can be derived by combining the theory in Chapter 1 and the interdisciplinary synthesis in Chapter 4. Finally, the conclusion summarizes observations of this research with a modest way forward to address our challenge.

[44] Robert J. Sternberg, Elena L. Grigorenko, and Jerome L. Singer, *Creativity: From Potential to Realization*, 1st ed. (Washington, DC: American Psychological Association, 2004), 199-200..

Chapter 1

Theory for Creativity in Strategy

Theory cannot equip the mind with formulas for solving problems, nor can it mark the narrow path on which the sole solution is supposed to lie by planting a hedge of principles on either side. But it can give the mind insight into the great mass of phenomena and of their relationships, then leave it free to rise into the higher realms of action.

Carl von Clausewitz

Where does this thesis fit in the universe of all that has been written about strategy? To help answer this, the following chapter moves from general to specific across ten theory subjects. These subjects serve two purposes. First, the general subjects provide key background. Then, the specific subjects–starting with the section on 'ways'–become increasingly specific about how theory can make strategic creativity more concrete for practitioners. Here is a synopsis of the role for each subject in this chapter.

1. Strategic theory – describes the general subject area of this thesis.
2. Levels of strategy – provides one multi-level interpretation for the scope of strategy.
3. Strategy definition 1 (key definitions of strategy) – clarifies the common use of related terms.
4. Strategy definition 2 (strategy versus planning) – further isolates the meaning of strategy by using planning as a reference.
5. Strategy definition 3 (deliberate versus emergent strategy) – scopes this thesis for the 'deliberate' half of strategy with interest in 'unrealized' strategy *per se*.
6. Ways – presents a spectrum of meanings for the specific concept of 'ways.'
7. Tailoring theory in strategy – states a key premise about how tailoring theory itself is a creative core skill of strategizing with ways.
8. Theories of Action – summarizes a specific kind of theorizing at the heart of crafting 'ways' in strategy (examples begin here and continue in Chapter 5).
9. Strategic elements – gathers many different terms that all seem to describe sub-elements that make up a comprehensive theory of action.
10. Transfer value and change in strategic content – states a key premise about where we get *part* of our strategic content to strategize.

To visualize how these subjects move from general to specific, imagine each one nested in the subject above it as a subset as shown in Figure 2. For example, 'ways' is but one subset of strategy functions under the definitions. Crafting ends and means would be other functions but they are not in the scope of this work. Or consider how a

theory of action is a subset of tailoring theory in strategy development. Tailoring theory could apply to a great many things including a 'theory of reality' as briefly discussed in Chapter 4. But the focus here is thoughts on developing a theory for the actions to be taken in a strategy.

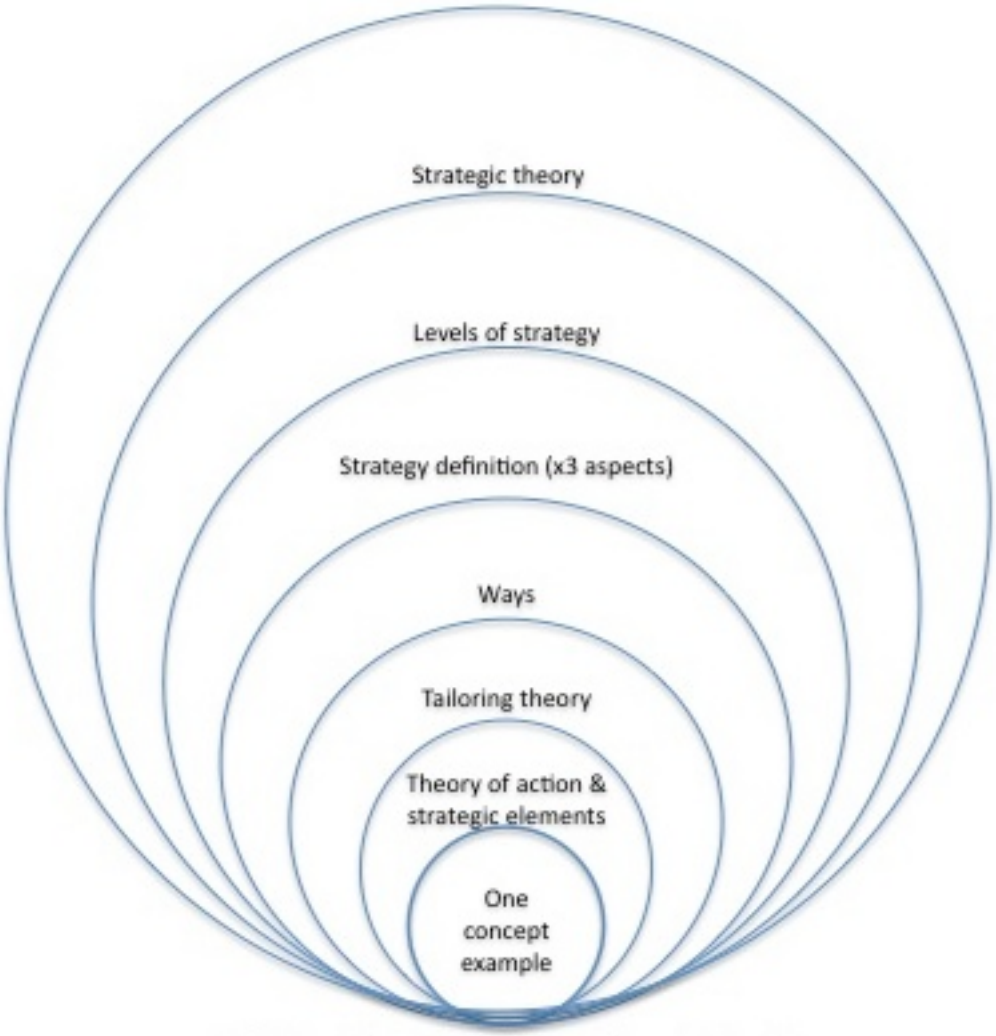

Fig 2: Ten Theory Subjects from General to Specific

Strategic Theory

Strategy theory or *strategic theory* comprises ideas about how to do strategy (process) and what strategies to do (content). Colin Gray has been keen to help move the definitions along. In *Modern Strategy* he writes, "strategic theory educates the mind by providing intellectual organization, defining terms, suggesting connections among apparently disparate matters, and offering speculative consequentialist postulates… how

to be prepared to do it."[1] This focus on "how to" appeared again in Gray's work over ten years later in *The Strategy Bridge: Theory for Practice*. Herein he continues the theme of "strategic theory" as that which "helps educate the strategist so that he can conceive of, plan, and execute strategy by his command performance."[2] Education of the strategist is the aim of this work, so Gray's practical emphasis is encouraging.

Bernard Brodie also had a "how to" emphasis when referring to strategic theory but called it "strategic thinking." He wrote, "Strategic thinking, or "theory" if one prefers, is nothing if not pragmatic. Strategy is a "how to do it" … a guide to accomplishing something and doing it efficiently… Above all, strategic theory is a theory for action."[3] In addition to the elucidating addition of the phrase 'theory for action,' Bernard Brodie gave strategic theory the same "how to" quality of Colin Gray.

Within Brodie and Gray's combined emphasis on practice and action, Colin Gray also introduces the idea of a 'general theory' of strategy. He wrote, "the function of the general theory [of strategy] is to equip the strategists who must do strategy with the conceptual education they need… The general theorist educates the strategic planner and commander in the universal and timeless strategic lore that applies to all strategic phenomena."[4] This useful description of a general theory for strategy captures the possibility that there is such a thing as a 'general theory' of strategy based on timeless phenomena for practical use. We could extend this to say tailoring a 'special theory' of strategy to an era is precisely what Clausewitz called the job of the strategist (discussed further in Chapter 1 under "Tailoring Theory").

The term 'strategy theory' also appears in business literature. In this profession there is a growing industry of strategy consultants devoted to strategy services, which Henry Mintzberg calls "strategy boutiques." He uses The Boston Consulting Group (BCG) as an exemplar of such boutiques.[5] The phrase "boutique" is useful to identify the existence of a broad USA movement in intellectual services[6] but could be misleading if it

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[1] Colin S. Gray, *Modern Strategy* (New York: Oxford University Press, 1999), 36.
[2] ———, *The Strategy Bridge: Theory for Practice* (New York, NY: Oxford University Press, 2010), 264.
[3] Bernard Brodie, *War and Politics* (New York,: Macmillan, 1973), 452f.
[4] Gray, *The Strategy Bridge: Theory for Practice*, 82.
[5] Mintzberg, Ahlstrand, and Lampel, *Strategy Safari: The Complete Guide through the Wilds of Strategic Management*, 97.
[6] Alan Greenspan, *The Age of Turbulence: Adventures in a New World* (New York: Penguin Press, 2007), 314.

disparages the impact of such companies on strategy theory. The BCG has even *altered* significant concepts in strategy theory that have been nation wide; namely the growth-share matrix and the experience curve.[7]

Descriptions of "strategy theory" in business are not as plentiful as those of "strategy" but here is a good start.

> Strategy theory is a diverse multidisciplinary academic field with competing schools of thought based on partly incommensurable basic assumptions, including disagreement about what strategy theory should seek to explain. This is underscored by the considerable effort during the last decade within the field to identify 'paradigms' (Schendel, 1994) and search for new approaches (Rumelt, Schendel et al., 1994).[8]

While these words indicate an unresolved discourse, the usefulness of this description lies in highlighting the multidisciplinary nature of strategy theory.

Common themes in these definitions of strategy theory gathered from both professions point to a "how-to" focused, multidisciplinary, general theory of common elements in strategy to provide educational clarity to practitioners. These nascent definitions of strategy theory contain two important threads that run throughout this work.

First, strategy theory has an emphasis on educating practitioners for the "how to." Strategy theory involves some turn from the vast sea of strategy concepts toward the everyday reality of living practitioners who must answer the mail on specific strategy work in the here and now. As noted in the introduction, peacetime strategy work can have a stunning range in the military from war plans to organizational transformation strategies. Second, in these definitions the emphasis on "common elements" points to the hunting ground for comparisons across the professions. We shall see as Clausewitz noted, that without these common elements, no such study of strategy could hope for any lasting coherence (see "Clausewitz on Tailoring Theory in Strategic Process").[9]

It is also useful to step back and think about the value of theory in general when thinking about 'strategy theory' as the umbrella term that includes theory about

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[7] Carl W. Stern, Michael S. Deimler, and Boston Consulting Group., *The Boston Consulting Group on Strategy*, 2nd ed. (Hoboken, N.J.: John Wiley & Sons, 2006).
[8] Bjorn Haugstad, "Strategy Theory: A Short Review of the Literature," ed. SINTEF Industrial Management (1999), 1.
[9] Carl von Clausewitz, *On War*, ed. Michael Howard and Peter Paret (Princeton, N.J.: Princeton University Press, 1984), 71.

strategizing. Clausewitz said good theory is "practical" and "useful."[10] He also said theory is to "light our way, ease our progress, train our judgment, and help avoid pitfalls."[11] Hal Winton proposed that theory defines, categorizes, explains, connects (related fields/ideas) and anticipates.[12] Colin Gray also adds, "theory provides insights and questions, not answers."[13] The combined thoughts of these three theorists provide a good picture of why theory matters and what constitutes good theory. Nevertheless, we depart from this umbrella concept of strategic theory with a warning about all theory in general.

Even very good theory can be a two-edged sword depending on how it is used. To understand this we can consider the findings in *The Essence of Decision*. The authors Allison and Zelikow view the Cuban Missile Crisis through three models and come to an interesting conclusion. In the end they ask, "do our theories shape the questions we ask, or the answers we get to common questions?" Their answer is 'both.'[14]

This insight leads to a simplified model showing the criticality of theory in the development of strategy. Per the authors, pre-existing theory shapes the questions we ask. The questions we ask in turn affect the answers we derive (theory is at play here too). The answers we get become the solutions from which we choose. Then, the solutions become our strategy in some way. This simplified chain of events,
THEORY → QUESTIONS → ANSWERS → SOLUTIONS → STRATEGIES
helps to frame a key observation of this research: the criticality of theory that precedes strategy. Since the questions we ask are fundamental to developing strategy, and our theories drive our questions, the key issue becomes *do our theories match reality in the first place*?[15]

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[10] Ibid., 144.
[11] Ibid., 141.
[12] Harold R. Winton, "An Imperfect Jewel: Military Theory and the Military Profession," in *SAASS 600 Course Paper* (Montgomery, AL: School of Advanced Air and Space Power Studies, 2010), 4.
[13] Gray, *Modern Strategy*, 128.
[14] Graham T. Allison and Philip Zelikow, *Essence of Decision: Explaining the Cuban Missile Crisis*, 2nd ed. (New York: Longman, 1999), 387.
[15] This is a larger aspect of strategy development than the problem framing stage captures (before designing an operational approach). The problem framing stage of operational design indeed takes us 'up' one important level from the approach development stage. Of course, before that, is the assessment of the environment frame. But before *all* of these is assessing *potential pre-existing theory mismatches with reality*. For example, how we perceive an opponent could be completely biased thus cutting us off from an accurate estimate of the situation before we even begin. So while the problem framing and questioning is

Dr. Tom Hughes from SAASS states this conundrum as, "theory does things for you and to you." A haiku version of this ideas is, theory can enlighten and blind. All theory should be read and understood with this essential tension. In doctrine we also use a cooking analogy to characterize this warning. We say doctrinal works are books about cooking (authoritative) without being cookbooks *per se* (directive). The goal of theory is to emphasize the authoritative observations while minimizing the blinding applications that may ignore the wild swings of change from one context to the next.

Levels of Strategy

Sir Basil Liddell Hart captured an early distinction in different levels of strategy. He defined 'higher' strategy as *grand strategy* which is "to coordinate and direct all the resources of a nation, or band of nations, towards the attainment of the political object of the war--the goal defined by fundamental policy." His next level of strategy downward in scale was *military strategy,* which he defined as "the art of distributing and applying military means to fulfill the ends of policy."[16]

For the basic lexicon of levels, we may begin with Dennis Drew and Donald Snow's introduction to the national security process. Drew and Snow recognized five classic levels of strategy.[17]

1. National Security Objectives (National Security Strategy, foreign policy, etc.)
2. Grand Strategy (or national policy for all instruments of power)
3. Military Strategy
4. Operational Strategy
5. Battlefield Strategy

Purists are disturbed by the concept of 'strategy' at the operational or tactical levels but this is based on a key idea. Sound strategy could align from levels 1-4 and still be lost by *decisions* made *on approaches* to specific battles.[18] Conversely, the majority of battles can be won with sound level 5 approaches and yet lose the war at level 3 or be unable to

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essential toward 'solving the right problem' *our theories* of the opponent, how the world works, human nature, etc *drive us to ask the right questions* in the first place.

[16] Basil Henry Liddell Hart, *Strategy: The Indirect Approach*, 4th ed. (London,: Faber, 1967), 335.

[17] Dennis M. Drew and Donald M. Snow, *Making Twenty-First-Century Strategy: An Introduction to Modern National Security Processes and Problems* (Maxwell Air Force Base, Ala.: Air University Press, 2006), 13-27.

[18] Liddell Hart, *Strategy: The Indirect Approach*, 24.

account for poor political judgment at level 1.[19] Thus, it is not diluting terms to think of strategizing happening at multiple levels integrated across scales of organization.

In business this is roughly analogous to Pfeffer and Sutton's "knowing-doing gap" and the newer business discourse on strategic alignment via project management. A sound higher-level strategy is meaningless without proper alignment and execution of lower level strategies. In the same way, Drew and Snow view the levels as *a whole strategy process* made of, "a series of interrelated decisions [across levels] rather than a group of loosely related planning events."[20]

Drew and Snow's use of the word 'strategy' at the lower levels is also internally consistent with their overall definition of the strategy process as "a plan of action that organizes efforts to achieve an objective." Further, they are clear that while this process may have once happened in the mind of a single warrior king, "strategy is now made by different people or groups at different levels of authority, with often very different perspectives on what can or should be done."[21] The evolution of the five levels also supports their view of a common strategy process simply being expanded by virtue of new scales of organization.

Most of history shows three levels of strategy at work: levels 1, 3, and 5. Level 1 is the national leadership of kings, pharaohs, monarchs, emperors, khans, sultans, prime ministers, presidents and at times principal counsels like the Greek Areopogas or Roman Senate. Level 3 is the ancient *strategos* or senior military leader. At times, men like David and Napoleon merged levels 1 and 3, while men like Cincinnatus and Washington shunned the same. Level 5 is the most ancient form of idea versus idea that can usually be seen from end to end with the human eye on some battlefield.

Level 4 strategy appeared with the tripartite view of war (strategy, operations, tactics). The older bipartite model of war in Clausewitz' day (strategy and tactics) had morphed to the tripartite view of war by Moltke's day. The creation of trains and telegraphs expanded military operations. This expansion demanded command and

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[19] Williamson Murray, "Military Adaptation in War (Ida Paper P-4452)," in *IDA Papers*, ed. Institute for Defense Analysis (Alexandria, VA: Institute for Defense Analysis, 2009), 1-33.
[20] Drew and Snow, *Making Twenty-First-Century Strategy: An Introduction to Modern National Security Processes and Problems*, 26.
[21] Ibid., 13.

control (C2) systems[22] and with them, a new level of strategy implementation. War experience with this new level led Moltke to declare, "strategy is a system of expedients."

Level 2 could be observed in history when the scale of a nation-state demanded integration of several instruments of power all at once. Thus, in episodes we can study level 2 via the grand strategy of the Roman Empire[23] or the grand strategy of the Byzantine Empire.[24] Then in the post-WWI-international order, grand strategy became more of a norm as a concept re-captured by Liddell Hart in his era of large empowered nation states. Overall, increasing scales of organization required two new levels of strategy (2 & 4) and changes in others (3 & 5) as summarized in the chart below.

Table 1: An evolution of levels in strategy.

LEVELS	DESCRIPTION	HISTORY	SIGNS IN THEORY
Level 1[25]	National command strategy	Ancient. National leadership varies in form--but little in its functional essence.	The corpus of leadership literature.
Level 2	Grand strategy	Found in episodes of empire or large states (Egypt, Rome, Byzantine). Re-discovered as a phenomena in Western post-WWI theory, most famously by Liddell Hart circa	Modern instruments-of-national-power discourse and the recent whole-of-government movement in the US. In

[22] Martin Van Creveld, *Command in War* (Cambridge, Mass.: Harvard University Press, 1985), 4.
[23] Edward Luttwak, *The Grand Strategy of the Roman Empire from the First Century A.D. To the Third* (Baltimore: Johns Hopkins University Press, 1976).
[24] ———, *The Grand Strategy of the Byzantine Empire* (Cambridge, Mass.: Belknap Press of Harvard University Press, 2009).
[25] We could enter a hypothetical here to characterize how the levels of strategy morph to scale. Imagine a 'level 0' triggered by a new scale like some form of world government. At this scale, each nation would be viewed as in instrument of grand strategy for a 'world' power or a higher level of government. I merely posit this hypothetical for four reasons. First, if larger forms of government above nations develop command, we should anticipate yet another evolution in the levels of strategy in keeping with the scale-effect we witnessed with the evolution of level 2 and level 4. Second, historical evolutions of new levels are typically thrust upon actors unaware. Viewing the evolution of the levels in a broad way helps us anticipate possible changes in scale. Third, viewing these evolutions helps us understand how strategy runs throughout all of the levels and only the scale of strategy changes but not its functions. Fourth, if some group of thinkers wanted to somehow 'do away with' a level of strategy like level 4, you could stand with them if the reality of scales alters to warrant this move.
[26] Liddell Hart, *Strategy: The Indirect Approach*, 322. He re-discovers grand strategy as a phenomena in the new 20th century international order resulting from two world wars. He calls it "*terra incognita*—still awaiting exploration and understanding." In his 1954 preface to the first edition of Strategy he notes that his thoughts on grand strategy were added to this work *after* the lessons of WWII (see the bottom of page xix).

		1954.[26]	principle, Clausewitz' "object" in strategy.[27]
Level 3	Military strategy	Always present but the scale steadily increased. 20th century chaos, complexity and wicked-problem literatures emerge. 2005 military Operational Design movement accelerates to cope.	In principle, Clausewitz' "aim" in strategy (see note 27).
Level 4	Operational strategy	1870 expansion of war beyond single battlefields via train and telegraph. Creation of 'C2' systems under Moltke[28] and later Tukhachevskii. In 1980 Luttwak cites on-going failure to think at this level of strategy.[29]	Operational art. "Strategy is a system of expedients," possibly an early capture of emergent strategy by Moltke[30]
Level 5	Battlefield strategy	Ancient. Modern change constitutes a "bruising dialog"[31] upward for freedom of action based on battlefield realities against centralized control norms[32] in the information age.	"Making strategy upon a map" closer to the tactical level - Jomini[33]

Colin Gray's levels follow Drew and Snow's five levels without the use of the word 'strategy' at lower levels per se.[34] His levels are named:

1. Vision/Policy
2. Grand strategy
3. Military Strategy
4. Operations

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[27] Carl von Clausewitz distinguished between the object and the aim in theory. The object is always to compel someone to do our will. The aim is to reduce their capability to resist. The object is political and the aim is military. To get the object we pursue the aim. Thus, Clausewitz tells us when war begins, the aim replaces the object since the focus is to reduce enemy capability to resist doing our will. As we shall see in the next section on definitions, Clausewitz, Liddell Hart, Colin Gray, Beatrice Heuser and others see Strategy as where the object and aim marry between level 2 and 3. Others like Fred Charles Ikle and Gideon Rose also write about the pathologies that result from divorcing object and aim. See page 75 of Clausewitz *On War* to touch base with the object and aim concepts in theory.

[28] Van Creveld, *Command in War*, 4.

[29] Benjamin S. Lambeth, *The Transformation of American Air Power*, Cornell Studies in Security Affairs (Ithaca, NY: Cornell University Press, 2000), 81.

[30] Helmuth Moltke and Daniel J. Hughes, *Moltke on the Art of War: Selected Writings* (Novato, CA: Presidio Press, 1993), 47.

[31] Michael W. Kometer, *Command in Air War: Centralized Versus Decentralized Control of Combat Airpower* (Maxwell Air Force Base, Ala.: Air University Press, 2007), 276-77.

[32] Van Creveld, *Command in War*, 38. Before Van Creveld even saw the full bloom of cyberspace, he said there is an "age old tendency" toward centralizing.

[33] Antoine Henri Jomini, *The Art of War* (Mineola, N.Y.: Dover Publications, 2007), 62.

[34] Gray, *Modern Strategy*, 21. While Colin Gray is careful not to adulterate the word Strategy by associating it with lower levels, he does imply strategizing happens at lower levels in *The Strategy Bridge*, "the strategy… will specify, in whatever detail is appropriate for its level (overall military, operational, tactical)…" (p. 241).

5. Tactics

Gray is very clear about two truths associated with the levels. First, the levels are *completely interdependent,* thus, he indirectly recognizes the general evolution of the levels in strategy. Lower level access to higher level ways is exemplified (in a negative manner) by General (retired) Krulak's information age concept of the "strategic corporal." Interdependence between levels emerges when a mistake made by an E-5 on the battlefield is negatively amplified across the world with grand strategy effects in the information age a la Abu Ghraib in Iraq.[35]

Second, Gray instructs that viewing the levels vertically leads to an "inevitable implication of a descent from matters of greater to lesser importance, [which] can conceal the interdependencies that give integrity to the whole."[36] So he does also view strategy 'on the whole.' Where Colin Gray's work *Modern Strategy* seems scoped for military strategy with grand strategy implications, the Drew and Snow definitions of "the levels" is more explicit that strategizing occurs across all levels of large organization where there is access to ways and means. From the White House to the battlefield, decisions are being made *in common* about *how* to achieve a stated national end.

Definitions of Strategy

For military theorists, most definitions center on level 3 or the bridge between levels 2 and 3. Colin Gray's Clausewitzian definition falls between levels 2 and 3. "Strategy is the bridge that relates military power to political purpose; it is neither military power per se nor political purpose. By strategy I mean *the use that is made of force and the threat of force for the ends of policy*."[37] Gray's definition is a thoughtful extension of Carl von Clausewitz' classic work of military theory in *On War* where he wrote, "Strategy [is] the use of engagements for the object of the war."[38] At first glance this definition appears to be "operational" or level 4 which is why Beatrice Heuser calls this a limited definition of strategy.

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[35] Gen (ret) Charles C. Krulak, "The Strategic Corporal: Leadership in the Three Block War"," *Marines Magazine*, no. January (1999).
[36] Gray, *Modern Strategy*, 21.
[37] Ibid., 17.
[38] Clausewitz, *On War*, 128.

However, as Hal Winton notes Clausewitz did not write during the time of a tripartite scale of war (strategy, operations and tactics). Hal Winton also notes, however, that Clausewitz was on the trail of expanding the bipartite view of war to the tripartite view we work with today.[39] Further, Gray's broader reading of Clausewitz appreciates the words "use" and "object." A free interpretation of "use" could imply both the "use and threat" of force while "object" carries that key alignment function of military strategy to the highest level of government where the object is set. Thus, Clausewitz' true intent for 'strategy' was not 'long-range' or 'most important' but rather the bridge between ends, ways and means.[40]

Theorists Helmut von Moltke and Antoine Jomini also derived famous definitions of strategy written within the bipartite context of war as previously described in the section on 'levels.' Moltke's definition can be thought of as a level 4 definition. Moltke led and wrote at a time of great expansion in military affairs made possible by long-range communication (telegraph) and transportation (the train). The chaos of 'moving divided and fighting united' in coordinated fashion led him to write, "Strategy is a system of expedients. It is… the continued development of the original leading thought in accordance with the constantly changing circumstances."[41] On the other hand, Jomini's definition, "the art of making war upon the map" can be placed on level 5 or battlefield strategy.[42] As simple as this definition sounds, even today a wartime concept of operations (CONOP) must mature to some point of being specific about ideas on a map.

There are also entirely different ways to see strategy.

Everett Dolman arrives at something that looks more like Peter Drucker or Michael Porter in the business world. In *Pure Strategy* he maintains that strategy is "a plan for maintaining continuing advantage."[43] This definition is rooted in his own well-developed theory that strategy is not about victory *per se*. "Victory is but a moment in time" for the strategist.[44] The strategist is more focused on setting conditions long beyond the current events of battles and campaigns. One can see common themes in this

[39] Ibid., 379, 58, 90.
[40] Gray, *Modern Strategy*, 95.
[41] Moltke and Hughes, *Moltke on the Art of War: Selected Writings*, 47.
[42] Jomini, *The Art of War*, 62.
[43] Everett C. Dolman, *Pure Strategy: Power and Principle in the Space and Information Age*, Cass Series--Strategy and History 6 (London ; New York: Frank Cass, 2005), 6.
[44] Ibid., 9.

view with Michael Porter's work. For Porter, "competitive strategy is developing a broad formula for how a business is going to compete… the collective strength of [the five basic competitive forces] determines the ultimate profit potential in the industry, where profit potential is measured in terms of *long run return on invested capital*."[45] The competition aspect is common to both definitions. Arguably, by focusing on adaptation and competition, Dolman shares Porter's view but with a much longer horizon.

In *The Strategy Pathfinder* Angwin, Cummings, and Smith sort through the wilderness of 'strategy' definitions by taking a functional view: what does strategy *do*? The first edition of their book settled on two functions of strategy—orient and animate—by borrowing heavily from a Karl Weick paper on "Substitutes for Strategy." Their initial definition was "a good strategy… would… give focus direction and purpose to an organization (orientation) and encourage and move people to seek to achieve expectations for an organization or surpass and recreate these expectations (animation)."[46] In the second edition of their book they add a third function after numerous case study observations: integration. Thus, "strategy is about orientation, animation and integration."[47] The core thesis of their book is how a firm becomes more strategic by honoring these three functions.

In sum, there is a discourse that relegates strategy to a certain level of organization and another that clarifies strategy by its functions and is applicable more broadly. To honor these delineations I'll attempt to follow the convention recently established by Beatrice Heuser. In *The Evolution of Strategy*, Beatrice Heuser's definition straddles level 2 and 3 like Gray and labels this true Strategy with a capital 'S'.[48] This is a helpful way to be sure 'which' strategy one is talking about. However,

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[45] Michael E. Porter, *Competitive Strategy: Techniques for Analyzing Industries and Competitors : With a New Introduction*, 1st Free Press ed. (New York: Free Press, 1998), xxiv, 3. Italics added. For reference the five basic competitive forces in Porter are industry competitors, potential entrants, substitutes, bargaining power of suppliers and bargaining power of buyers (pg 4).

[46] Duncan Cummings Angwin, Stephen Smith, Chris, *The Strategy Pathfinder: Core Concepts and Live Cases*, 2nd ed. (Chichester, United Kingdom: John Wiley & Sons Ltd., 2011), xvi.

[47] Ibid., xvii.

[48] Beatrice Heuser, *The Evolution of Strategy: Thinking War from Antiquity to the Present* (New York: Cambridge University Press, 2010), 27. Later, Heuser introduces one of her main themes: the importance of conceiving strategy as involving the dynamic of two thinking sides. "Strategy is a comprehensive way to try to pursue political ends, including the threat or actual use of force, in a dialectic of wills - there have to be at least two sides to a conflict." According to Gray, this two-wills criteria in defining strategy was introduced by Andre Beaufre in 1963 (*Modern Strategy*,18). In 2005, Everett Dolman discusses the

this only leaves us two ways to conceptualize the subject (capital 'S' and little 's').

Where possible I will follow this convention of Strategy with a capital 'S' as classic political-military Strategy between levels 2 and 3. I use strategy with a little 's' to refer to the subject of strategy such as 'strategy theory,' 'strategy training,' 'strategy literature,' etc. And I will refer to my main subject of 'strategizing' that happens at all levels as also in the spirit of a little 's'. Strategizing emphasizes crafting creative *ways* to use means to achieve ends with a tailored theory of action at any level of strategy.

Strategy or Planning? I asked my wife, "Is there a difference between having a plan and having a strategy?" She responded, "Yes, the strategy comes first then the plan implements strategy." Why does she know this? Why is that so intuitive even to people outside the profession of arms? This anecdote leads us to the question: "are strategy and planning the same thing?" Attempting to separate the two here will help further isolate the meaning of strategizing. While distinguishing strategy from planning helps to isolate the subject, putting the two back together again also helps present a holistic picture of the strategy process. I attempt to do this in Chapter 4 synthesis.

Across the professions we may observe four ways to conceptualize this distinction between strategy and planning. First, Walter Vincenti's classic work on the history of aeronautical engineering offers a way to classify engineering knowledge.[49] He explains how engineers straddle the world of scientific theory and scientific application. To do good engineering they must know what to do, how to do it, and how to carry it out. The "what" and "how" involves "descriptive" and "prescriptive" knowledge preceding implementation planning. The "how to carry it out" afterwards is analogous to planning.

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significance of two-wills in strategy (*Pure Strategy*, 25) and in 2008, Harry Yarger also highlights this fundamental (*Strategy and the National Security Professional*, 32). Further, since Clausewitz uses the 'dual' metaphor (as in 'spar'), the two-will aspect was likely a truism to a warrior-practitioner like Clausewitz. But if there is any doubt Clausewitz conceived of strategy with a two wills aspect, the following quote should clarify. "War, however, is not the action of a living force upon a lifeless mass (total nonresistance would be no war at all) but always the collision of two living forces. The ultimate aim of waging war, as formulated here, must be taken as applying to both sides. Once again, there is interaction…Thus I am not in control: he dictates to me as much as I dictate to him" (*On War*, 77). Finally, as Liddell Hart explains the greatness of the 'indirect approach' he describes its significance "to all problems of the influence of mind upon mind" (*Strategy*, xx).

[49] Walter G. Vincenti, *What Engineers Know and How They Know It: Analytical Studies from Aeronautical History*, Johns Hopkins Studies in the History of Technology [New. Ser., No. 11] (Baltimore: Johns Hopkins University Press, 1990).

The "what to do" and "how to do it" are analogous to strategy indicated by the cognitive work that precedes planning.

Second, in business the difference between strategy and planning can be illustrated in project management. A "project" is differentiated from "work" by the fact that it has a beginning and an end. One can also imagine wars as 'projects' amid the 'work' of state competition in the international environment. In a project context, the foundational Project Management Book of Knowledge (PMBOK) proposes there is an activity that precedes the planning of a project. PMBOK groups all project activities into five categories: initiating, planning, executing, monitoring/controlling and closing. In the "initiating" phase there is cognitive work to develop an idea of success before planning begins. This is another way to view the distinction between strategy and planning.

Third, in the military the strategy-planning distinction is still taking shape but appears to happen between operational design (OD) and joint operational planning (JOPP). OD is analogous to a method for strategy while JOPP is analogous to a method for planning. General Mattis is the US military thinker and leader at the center of directing that we add design to planning. He describes the distinction this way.

> Design does not replace planning, but planning is incomplete without design. The balance between the two varies from operation to operation as well as within each operation. Operational design must help the commander provide enough structure to an ill-structured problem so that planning can lead to effective action toward strategic objectives. Executed correctly, the two processes always are complementary, overlapping, synergistic, and continuous.[50]

How OD and JOPP fit together is still emerging. Jeffrey Reilly shows the main split happening between mission analysis and course of action (COA) development in the JOPP process[51] (discussed in Chapter 3). While I separate strategy from planning in Chapters 2 and 3, I put them back together in chapter 4 after analyzing the subject of strategizing across the professions.

Finally, military strategy consultants at Booz Allen Hamilton Inc. put their fingers on the differences in learning methods between design and planning.[52] Design and planning have their own associated "learning structures." While they are complementary,

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[50] Gen J.N. Mattis, Commander, Joint U.S. Force Command to U.S. Joint Forces Command, memorandum, 6 October 2009, 7, 8.
[51] Jeffrey M. Reilly, "Operational Design: Shaping Decision Analysis through Cognitive Vision," in *3rd Edition* (Montgomery, Alabama: Departement of Joint Warfare Studies, Air Command and Staff College (ACSC), 2010), 9.
[52] Naveh Shimon et al, "The Structure of Operational Revolution: A Prolegomena," 68.

design adds environment and problem framing,[53] which are inherently learning processes that feed strategizing. Planning does not contain this kind of learning structure *a priori* and thus this shows another key difference.

On the other hand, J.C. Wylie and Dennis Drew indirectly capture the blurred nature of strategy and planning in their definitions. Both of these classic authors merge "plan of action" into their definitions of strategy itself. Wylie defines strategy as "*a plan of action* designed in order to achieve some end: a purpose together with a system of measures for its accomplishment."[54] Dennis Drew and Donald Snow define strategy as, "*a plan of action* that organizes efforts to achieve an objective."[55]

To balance such views, Colin Gray critiques this usage of the word "plan" in strategy definition as a "distraction" from *strategic effects on the course of events* in question.[56] Thus, Gray warns of equating strategy and planning, for while a good plan may indeed contain a good strategy, many plans can go forward with no strategy at all. This can result in "doing the job right" rather than "doing the right job."[57] One can plan a poor idea very well and be no better off.[58]

It is important to note that one can take this separation of strategy and planning too far. Strategy pathologies may result from divorcing strategy and planning entirely (see Gorman et al).[59] Yet isolating strategy from planning analytically—as with the inertia of the military design movement—can help ensure that no planning occurs without a strategy (to be discussed further in Chapter 3). Thus, this work separates the two for the purpose of characterizing theory about 'strategizing.'

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[53] School of Advanced Military Studies, "Art of Design: Student Version 2.0," ed. Department of the Army (Ft. Levenworth: School of Advanced Military Studies, 2010), 30-31.
[54] Wylie, *Military Strategy: A General Theory of Power Control*, 14. Emphasis added.
[55] Drew and Snow, *Making Twenty-First-Century Strategy: An Introduction to Modern National Security Processes and Problems*, 13. Emphasis added.
[56] Gray, *Modern Strategy*, 18-19.
[57] Drew and Snow, *Making Twenty-First-Century Strategy: An Introduction to Modern National Security Processes and Problems*, 24.
[58] Mintzberg, *The Rise and Fall of Strategic Planning: Reconceiving Roles for Planning, Plans, Planners*, 360.
[59] Scott Gorman Wayne Grigsby, Jack Marr, Joseph McLamb, Michael Stewart and Pete Schifferle, "Integrated Planning: The Operations Process, Design, and the Military Decision Making Process," *Military Review*, no. January-February 2011 (2011).

Deliberate Versus Emergent Strategy. In 1987, Henry Mintzberg shook up the business strategy world suggesting that developing a deliberate strategy gave leaders an illusion of control over results. This new idea fed very well into Peter Senge's 1990 classic work on the strategy of creating a learning organization for adaptation.[60] Emergent strategy and organizational learning continue to be the intellectual foundation for entire sub-discourses like strategy on the move[61] and strategy in complex adaptive systems.[62]

Mintzberg's figure helps to explain why this research is scoped for intended strategy. A *deliberate* strategy is an *intended* strategy that becomes fully *realized*. Emergent strategy is a pattern of layered actions that results in something not originally intended. The smash between deliberate and emergent creates the realized strategy.

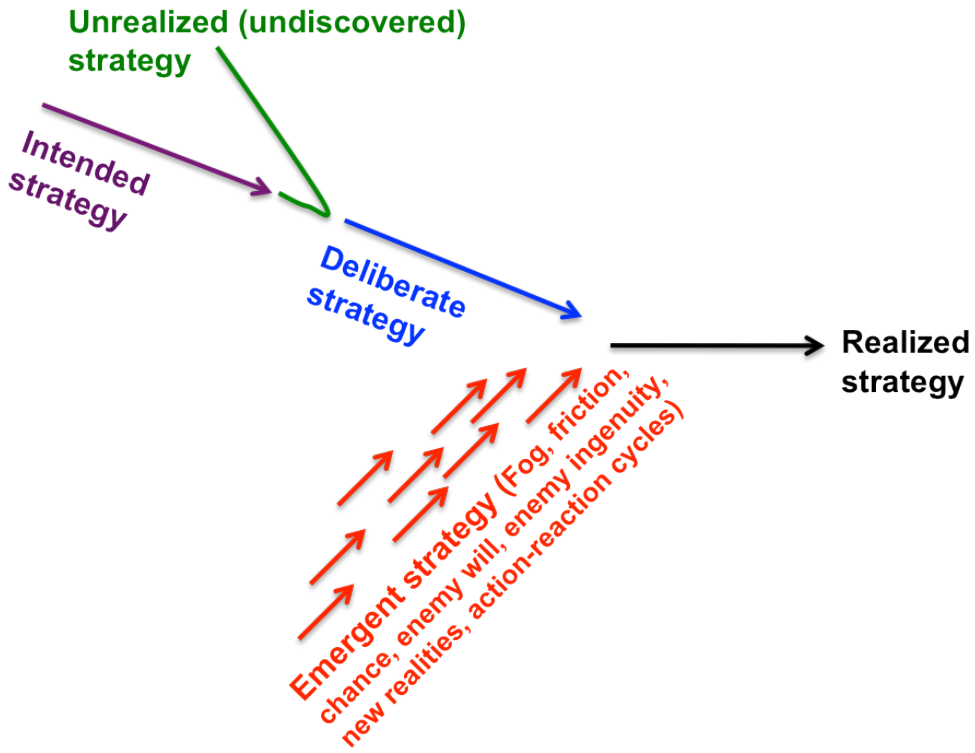

Fig 3. Strategies Deliberate and Emergent, adapted and reprinted with permission (Source: Mintzberg, Henry, Bruce W. Ahlstrand, and Joseph Lampel. *Strategy Safari : The Complete Guide through the Wilds of Strategic Management*. 2nd ed. Harlow, UK: FT Prentice Hall, 2009, 12).

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[60] Peter M. Senge, *The Fifth Discipline: The Art and Practice of the Learning Organization*, Rev. and updated. ed. (New York: Doubleday/Currency, 2006).
[61] Cathleen Benko and F. Warren McFarlan, *Connecting the Dots: Aligning Projects with Objectives in Unpredictable Times* (Boston: Harvard Business School Press, 2003), 6-11.
[62] Alex Ryan "Applications of Complex Systems to Operational Design." Unpublished manuscript, 2011.

This clash led Mintzberg to claim strategy is more about *formation* from context than conscious *formulation* from strategists.[63]

In my case, I'm fascinated by Mintzberg's *unrealized* strategy concept. Unrealized strategies are undiscovered potential strategies—the ideas that were never born. In the context of this work, imagine the good ideas that never come into existence due to lack of creativity. In one sense, the unrealized strategy drives this whole chart in an invisible way. What this chart cannot show is, where does this all start? This rich picture shows how strategy forms but it cannot show what 'world' we are starting this process from. Emergence is going to happen wherever we begin, but where we begin in the first place can hinge on what 'world' we start from based on the initial ideas of an intended strategy. These diverse potential starting points are represented by *unrealized* strategies that are shown as undiscovered, intended strategies (potentials). Thus, with complete respect for the newer works on emergent strategy, learning organizations, complex adaptive systems, etc., the scope of this work is focused on *intended strategy starting us in a better world from the very beginning* vis-à-vis improved creativity that addresses our original challenge.[64]

Ways

Today, it is hard to imagine that our theory once expressed 'ends' and 'means' without 'ways.' Yet, this was the state of written US strategic theory until quite recently. The familiar 'ends-ways-means' concept of strategy only found 'ways' expressly in 1979. In fact, Michael Porter's 1980 classic, *Competitive Strategy* did not use the word 'ways' in his core conceptualization of strategy. He wrote, "the essential notion of strategy is captured in the distinction between ends and means."[65] We use ends-ways-means so freely in our day that it can be lost on us how young the concept of 'ways' is in our modern strategy lexicon. In conceptual terms an ends-means focus is the mental equivalent of having destinations and cars but no paved roads upon which to enjoy them.

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[63] Mintzberg, *The Rise and Fall of Strategic Planning: Reconceiving Roles for Planning, Plans, Planners*, 24-26.

[64] The dream state would be maximum creativity in intended strategy, maximum institutional adaptability for emergent strategy, and pure organizational alignment for deliberate strategy all leading to the best of all possible worlds in realized strategy.

[65] Porter, *Competitive Strategy: Techniques for Analyzing Industries and Competitors: With a New Introduction*, xxiv.

Liddell Hart did not include ways with ends and means in his definitions but he was close to capturing the meaning of ways. He wrote, "… reflection on strategic principles—which point to the importance of maintaining an [end] consistently and, also, of pursuing it in *a way adapted to circumstances*."[66] Yet Liddell Hart was still using the 'ends-means'-only model just like Clausewitz and Corbett before him.[67] In 1962, Alfred Chandler's classic business definition of strategy indirectly posited 'ways' as 'courses of action.'[68]

Then in 1979 Harry Eccles expressly codified 'ways' together with 'ends' and 'means' as *concepts* with ends and means matching.[69] In 1986 Arthur Lykke Jr. also referred to ways as concepts.[70] Since concepts are at the heart of creative strategizing, this was a quiet turning point back to what Sun Tzu had always known.

In 1988 Lykke amplified this description as follows: "*Ways* are concerned with the various methods of applying military force. In essence, this becomes an examination of courses of action designed to achieve the military objective. These courses of action are termed 'military strategic concepts.'"[71] This blending of 'course of action' (COA) and 'concept' was a mild complication since not all COAs inherently contain strategic concepts any more than a plan always contains a strategy. Nevertheless, this line of thinking matured into the current paradigm we work with today.

In 1987 David Jablonski, editor of the *Roots of Strategy* series, continued supporting the growing concept of 'ways' in a key *Parameters* essay.[72] Then one of his students, Major General Chilcoat, published a very comprehensive paper on ends, ways and means in 1995. General Chilcoat's work is considered by some as the foundational

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[66] Liddell Hart, *Strategy: The Indirect Approach*, xxi. Italics added.
[67] Ibid., c.f. 321-22.
[68] Angwin, *The Strategy Pathfinder*, xiv. Alfred Chandler's definition of strategy is, "the determination of the long-run goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals." Goals and objectives are ends. Courses of action are a form of ways. Resources are means.
[69] Henry E. Eccles, "Strategy--Theory and Application," *Naval War College Review* 31, no. May-June 1979 (1979).
[70] Arthur F. Lykke, "Toward an Understanding of Military Strategy," *Military Strategy: Theory and Application* (1986): 3-7.
[71] ———, "Defining Military Strategy," *Miltary Review* 69, no. No. 5 (1989): 10.
[72] David Jablonski, "Strategy and the Operational Level of War," *Parameters* XVII, no. Spring (1987).

explanation of ends-ways-means method in national security strategy.[73]

The current JP 5-0 definition of ways centers on "methods"[74] at a higher level and "sequences of action" at lower levels.[75] Jack Kem's helpful work on campaign planning also uses "methods" to explain the meaning of ways.[76] All told, current definitions of 'ways' have the following range of meanings.

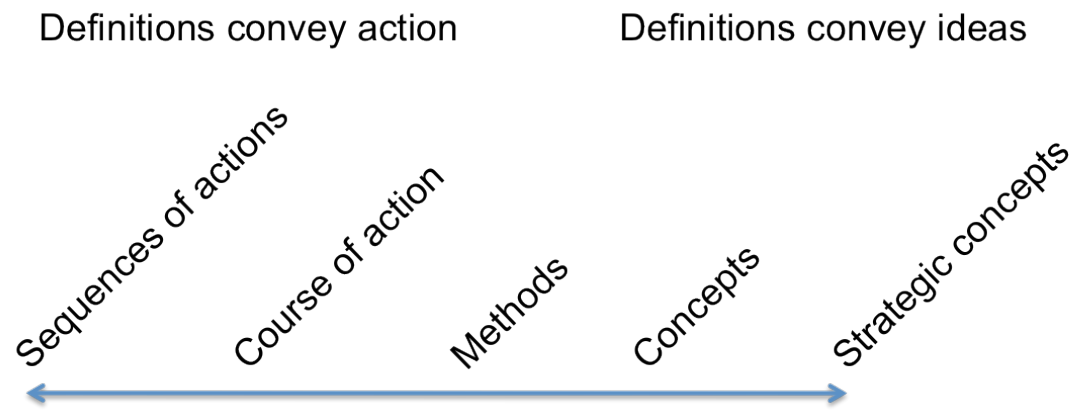

Fig 4: A Spectrum for the Meaning of 'Ways'

This is not to imply 'ways' were absent in strategy theory until 1979. Every page of Sun Tzu is some new meandering through the vast intrigue of ways. Thus, we still read him 2400 years later![77] But consider how Sir Basil Liddell Hart's "indirect approach" in strategy was written as if it was a new concept in 1929.[78] He wrote, "Throughout history, however, the direct approach has been normal, and a purposeful indirect approach the exception."[79] What was exceptional in history as if new? Could his conclusion equally have been, 'a means focus is normal and a creative ways focus is the exception?' In other words, is it possible that the direct approach was synonymous with means-dominant strategy and the indirect approach equates with creative ways-dominant strategy?

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[73] Richard A. Chilcoat, "Strategic Art: The New Discipline for 21st Century Leaders," *U.S Army War College Paper* (1995).
[74] JP 5-0. Joint Operation Planning, 26 December 2006, III-5.
[75] JP 5-0. Joint Operation Planning, 26 December 2006, IV-1.
[76] Jack D. Kem, *Campaign Planning: Tools of the Trade*, ed. U.S. Army Command and General Staff College, 3rd ed. (Fort Leavenworth, Kansas: U.S. Army Command and General Staff College, 2009), 23.
[77] Additionally, the student of Taoism will recognize Lao Tzu's emphasis is on finding the 'way' of all things. Sun Tzu after him also emphasizes the tao or way of things in his writings on war.
[78] Liddell Hart, *Strategy: The Indirect Approach*, xix.
[79] Ibid., 145.

It appears Liddell Hart's 'indirect approach' thesis could be viewed as a very broad observation about the role of creative *ways* in strategy and the 'direct approach' was synonymous with brute force or means-centered strategies. To consider this we can substitute 'ways' for 'indirect approach' in Liddell Hart's sweeping observation about the indirect approach.

> "With deepening reflection,… I began to realize that [ways] had a much wider application—that it was a law of life in all spheres: a truth of philosophy. Its fulfillment was seen to be the key to practical achievement in dealing with any problem where the human factor predominates… [ways are] as fundamental to the realm of politics as to the realm of sex… This idea of [ways] is closely related to all problems [involving] influence of mind upon mind—the most influential factor in human history."[80]

With this simple replacement technique it appears Liddell Hart's indirect approach could be nothing but an articulate clarion back to the concept of ways (albeit indirect ones, which could be a truism). So why this new discovery by Sir Basil and why were there no 'ways' in our 'ends-means' lexicon until 1979?

Effects-based operations (EBO) was yet another indirect call back to ways in 1995. Lieutenant General Dave Deptula knew that our dazzling new means were useless if they didn't get the effect for which we were looking.[81] His work was asking, 'independent of our new means, are our *ways* leading them to the mark?' One concise definition of EBO is, "coordinated sets of actions directed at shaping the behavior of friends, foes, and neutrals in peace, crisis, and war.[82]" With this in mind we can explore a term that gets to the *concepts behind* the 'coordinated sets of actions.' Such concepts behind the actions help to hone us in on creative ways-dominant strategizing.

Tailoring Theory as a Part of Strategy Development

Carl von Clausewitz poignantly articulated how theorizing—tailoring theory itself—is fundamental to strategizing. He did not expressly link theorizing to strategy development. Methods were not within his scope or aim. However, he laid out theorizing very clearly as something with which every strategist ought to be concerned.

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[80] Ibid., xx.
[81] David A. Deptula, "Firing for Effect: Change in the Nature of Warfare," in *Defense and Airpower Series*, ed. Aerospace Education Foundation (Arlington, VA: Aerospace Education Foundation, 1995).
[82] Edward A. Smith, "Effects Based Operations: Applying Network Centric Warfare in Peace, Crisis, and War.," in *Effects Based Operations*, ed. Command and Control Research Program (Washington DC: DoD, 2002), xiv.

This concept is not neatly laid out but a slight reordering of his propositions shows what a grip he had on this stage of Strategy.

We begin with Clausewitz' observation that, "every age had its own kind of war."[83] He famously established that the *nature* of war does not change according to his trinity of forces: reason, chance and violence. Yet, he also instructs that the *character* of war can vary greatly. Wars vary in purpose, frequency, intensity, scope, duration, brutality, morality, domain, environment, complexity and context. This is why no age can be approached with a formula from the last. In fact, Clausewitz indicates civilian and military leaders should derive an imperative of sorts from this point. "The first, the supreme, the most far-reaching act of judgment that the statesman and commander have to make is to establish by that test *the kind* of war on which they are embarking."[84] This variance in the character of war also means, "each period therefore would have held to its own theory of war [because] the events of every age must be judged in the light of its own peculiarities."[85] One could think of this as developing a *specific* theory of war in each age.

At the same time, a *general* theory of war is rooted in the unchanging universals of war. Clausewitz even preludes his classic by writing if there were no patterns to be studied in war, a general theory of war would not be possible.[86] In this way, the patterns or universals serve as an anchor of any adaptive theory of war because these universals—like his trinity—do not change. "But war, though conditioned by the particular characteristics of states and their armed forces, must contain some more general—indeed, a universal—element with which every theorist ought above all to be concerned."[87]

Enter Mr. Change. Clausewitz notes that, while there are indeed these universal elements, there are also two matters that draw a strategist's attention to his own kind of war. First, there are circumstances in war that cut across *all* known principles.[88] Second,

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[83] Clausewitz, Howard, and Paret, *On War*, 593.
[84] Ibid., 100. Italics added.
[85] Ibid., 593.
[86] Ibid., 71. "[War] deals with matters that no permanent law can provide for. One would agree, and abandon the attempt, were it not for the obvious fact that a whole range of propositions can be demonstrated without difficulty." Then a list of such enduring propositions is listed for example to finish this note on his (unfinished) plans for the book.
[87] Clausewitz, *On War*, 593.
[88] Clausewitz, Howard, and Paret, *On War*, 516.

there is even the emergence of *new* principles themselves in each era.[89] Thus, for Clausewitz, war always requires genius and new and careful thought that does not default to formulas, apprehends the cutting circumstances, and discerns new principles at play.

When combining his propositions about transfer value and change, Clausewitz is our leader. The theorist or strategist should adapt new theory to contemporary reality using both new principles *and* the universal element with "which every theorist ought to be concerned." For, "while there may be no system, and no mechanical way of recognizing the truth, truth does exist."[90] This is why principles must be *a part but not the whole* of any adaptive theory of war.[91]

This blended view of old and new is internally consistent with Clausewitz' very definition of strategic theory. He observed, "strategic theory… attempts to shed light on the components of war and their interrelationships stressing those few principles or rules that can be demonstrated."[92] Thus, when strategic theory has been properly tailored it tends to "emphasize the essential and general; leave scope for the individual and accidental; but remove everything *arbitrary, unsubstantiated, trivial, far-fetched, or supersubtle*. If we have accomplished that we regard our task as fulfilled."[93] While *On War* was an unfinished work—and critics often neglect this fact—we can see he was consistently thinking along these lines as seen in other writing.

When Clausewitz joined Russia to fight Napoleon he was faithful to leave behind a manual for Frederick William III after he signed a treaty with France. The title was *The Most Important Principles for the Conduct of War To Complete My Course of Instruction Of His Royal Highness The Crown Prince*. The last line of this work stated, "These principles, therefore, will not so much give complete instruction to Your Royal Highness, as they will stimulate and serve as a guide for your own reflection."[94] In the context of

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[89] Ibid., 364.
[90] Clausewitz, *On War*, 517.
[91] Over 100 years later, Sir Basil Liddell Hart wrote something similar. Meditation on the principles informs new 'ways' for each circumstance. He wrote, ""Is there a practical way of combining progress towards the attainment of truth with progress towards its acceptance? A possible solution of the problem is suggested by *reflection on strategic principles*—which point to the importance of maintaining an object consistently and, also, of pursuing it in *a way adapted to circumstances*" (*Strategy*, xxi, italics added).
[92] Clausewitz, *On War*, 177.
[93] Ibid., 633.
[94] Carl von Clausewitz, *Principles of War*, ed. Hans Gratzke, trans. Hans Gratzke (Milton Keynes UK: Lightening Source UK Ltd, 2010), 11.

the previous *On War* propositions, this statement seems consistent with viewing theorizing (here as "your own reflection") as the primary purpose of principles in Strategy (discussed further under "Transfer Value and Change").

Next, there are two critical subsets of theorizing which become so practical, we will see them materialize in the purposeful activity models: developing a theory of action and crafting strategic (sub) elements of a comprehensive strategy. With these next two stages we are getting closer to the essence of practical creativity in ways during strategy development.

Theory of Action – The Essence of 'Ways'

The term 'theory of action' has appeared sporadically throughout literature in an express or implied manner.[95] These appearances include the work of Peter Drucker, Bernard Brodie, Colin Gray, Everett Dolman, Peter Checkland, Vijay Govindarajan, Donald Schön, Huba Wass de Czege, Edward Hayward, Army Doctrine, and Army Central Command (ARCENT). In business, Peter Drucker touched on the meaning of this phrase by describing the 'theory of the business.' By this Drucker meant the core ways and ethos of a certain business, yet he also suggested strategy was "a firm's **theory** about how to gain competitive advantages" over its competition.[96]

As previously noted under 'Strategic Theory,' Bernard Brodie also employed this phrase in his capture of 'strategic thinking' in 1973. Colin Gray writes about the need for a strategy to contain a "theory of victory." Gray wrote, "to plan is to theorize… the practicable looking military solution to a pressing real-world problem is, in a vital sense,

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[95] One may ask, why isn't the word 'ways' or 'strategic concepts' or 'approach' sufficient to characterize this ways part of the ends-ways-means concept? First, 'Ways' is the newer and more ambiguous term in the ends-ways-means concept. Since it is an ambiguous term, practitioners could benefit from a term that is more clear about what they are actually creating in the ways part of strategizing. Second, as noted in the short intellectual history of the term 'ways,' it has been made synonymous with courses of action in some literature. But courses of action can be completely devoid of strategic concepts except for the default companion concepts that accompany the selection of certain means. But if ways are only to mean only those concepts that default with certain means, is that really what strategizing is about? That could be tantamount to nothing more than an exercise in matching means to ends where the ways are like some strategic equivalent of standard operating procedures. Third, there may be a phrase—like theory of action—that carries inherent imperatives for guiding the work of practitioners. That is to say, in addition to clarity, a term that captures the work of creative theorizing may be more useful for indicating what work is to be done by the practitioner. For example. the work of creating a 'theory of action' may be more readily ascertained than the work of creating 'ways' to accompany certain means for a strategy.

[96] Angwin, *The Strategy Pathfinder*, xv.

a theory." The act of devising a theory for the action is the heart of what he calls, "creative theorizing."[97] When strategy gets creative it should feel like theorizing.

Everett Dolman, in his work *Pure Strategy*, did not use the phrase 'theory of action' but nearly defined it. He wrote strategists must understand, "how the *parameters of action* determine the means and ends chosen in conflict, and to *manipulate the processes that transform* them."[98]

Donald Schön wrote about educating professionals in all areas. In *Educating the Reflective Practitioner*, Schön uses Chris Argyris' 'theory in action' and 'theories of action.' He uses these terms to explain the express and tacit theories behind designing behavior.[99] For Schön, all our actions are theory laden. As such, there are vast theoretical options to choose from to justify our action models.[100]

In Peter Checkland's Soft System Methodology (SSM), the helpful process of 'building conceptual models' is very close to building a theory of action. The main difference is the concept-model stage in SSM is to "build an activity model of what must go on in the system" (and does not include a living enemy).[101] In this way, Checkland's version of conceptual model seems to tell you *where* to take action not *what* actions to take.[102]

On the other hand, a way-heavy theory of action may have *multiple* enabling concepts capturing the logic of transformation in a manner that may not be represented by diagrammed dependencies. For example, John Warden's 5-Rings represented a conceptual model to understand the enemy which transferred to the theory of action stage with *additional* key concepts like strategic attack, strategic paralysis, and parallel war. These additional concepts couldn't be viewed with influence diagrams or logical dependencies—they are separate and distinct concepts enabling the strategy. The additions of such concepts made a very complete theory for action.

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[97] Gray, *The Strategy Bridge: Theory for Practice*, 241, 42.
[98] Dolman, *Pure Strategy: Power and Principle in the Space and Information Age*, 11. Emphasis added.
[99] Donald A. Schön, *Educating the Reflective Practitioner: Toward a New Design for Teaching and Learning in the Professions*, 1st ed., The Jossey-Bass Higher Education Series (San Francisco: Jossey-Bass, 1987), 255.
[100] Ibid., 324.
[101] Checkland, *Systems Thinking, Systems Practice*, 286.
[102] What actions to take materialize by his stage 7 (see Chapter 2).

'Discovery-Driven Planning (1995) and 'Theory-Focused Planning' (2004) both attempted to move normal planning more toward strategy with a 'theory' and 'discovery' focus. The emphasis on 'discovery' and 'theory focus' are reminiscent of theorizing for theories of action. One difference between these models and a theory of action is the logic of their origins. Both discovery-driven and theory-driven models engendered for situations that pose more unknowns than knowns.[103] It is for that condition--and not the quest for a tailored theory for action--that these two interesting models came on the scene.

Other thinkers have developed robust theories of action in other professions. One example is the Harvard Family Research Project. They published an article on how to develop and evaluate professional development for after school staff. Their theory of action was nested in the overall strategy to show "how our actions will affect the desired youth outcomes."[104] This well-developed theory of action would strike most readers as a novel 'model' with a graphic but it was completely tailored to their strategy… not something that could be cut and pasted from related work.

Turning to military thinkers, the founder of the Army's School of Advanced Military Studies (SAMS) General (retired) Huba Wass de Czege also characterizes something like a theory of action. Wass de Czege lists four kinds of theory that need to be tailored in the design process.[105]

1. Theory about the logic of systemic emergence
2. Theory about the logic of systemic intervention
3. Theory about the logic, structure and discipline of how to learn in the process
4. Theory of organization

From reading his 2010 work, I think we can summarize these as a theory of reality, theory of action, theory of organization, and a theory of adapting (re-ordering the last two to match the synthesis of models in Chapter 4). Later in the same work there are articulate descriptions of the tailoring work that must be done for each. He calls these

[103] Vijay Govindarajan and Christ Trimble, "Strategic Innovation and the Science of Learning," *MIT Solan Management Review*, no. Winter 2004 (2004): 75, e7.
[104] Tamara Sniad Claudia Weisburd, "Theory of Action in Practice," *The Evalutation Exchange* XI, Number 4, no. WInter 2005/2006 (2005).
[105] Huba Wass de Czege, "The Logic and Method of Collaborative Design," *Small Wars Journal* (2010): 7.

stages developing a 1) theory of the situation, 2) theory of the intervention and 3) the logic of the command's own intervention.[106]

Then Major Edward P. W. Hayward captured the theory of action stage in a revised understanding of the operational design movement. In his monograph, a theory of action "involves considering the propensity of the system, as well as the potentials and tensions within it, and determining the areas in which action can achieve a "change to the environment." This work also develops the idea of meta-questioning to help arrive at a theory of action by questioning the fundamental theories and assumptions behind the design idea. Hayward portrays "elements" or "assemblages" flowing from the theory of action which will also resemble several terms in the following section on strategic elements.[107]

An interim US Army Field Manual provides perhaps one of the clearest definitions for a theory of action.

> The theory of action is a single logic that binds together the pattern of interventions into a coherent whole. The theory of action is not strictly part of the problem frame, but it usually emerges during problem framing as the design team realizes the nature of the intervention. The theory of action should be a simple and suggestive insight about how the interventions will be orchestrated to move towards the desired system.[108]

This articulate definition adds key ideas like a single logic that binds, coherent wholes, simplicity, and insightfulness. At that point it begins to bleed into the next stage of developing strategic elements. "How the interventions will be orchestrated" is what the strategic elements do while the theory of action provides the logic of those elements (further discussion forthcoming).

Finally, an Army Central Command (ARCENT) design team was also very clear about what a theory of action does. "To deconstruct and re-envision the [problem proposition] into a larger Theory of Action that will orchestrate all of the intervention-

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[106] I take his "intervention" stage to be synonymous with a theory of action for a strategy; the logic of the command's intervention to be the collection of strategic elements that comprise a comprehensive strategy; theory about how to learn in the process as a theory of designing a learning organization; and theory of organization just as it is implied (discussed further in chapter 4).

[107] Edward P. W. Hayward, "Planning Beyond Tactics: Towards a Military Application of the Philosophy of Design in the Formulation of Strategy" (United States Army Command and General Staff College, 2008), 39-41.

[108] US Army TRADOC, "Design Field Manual (Interim) FMI 5-2 Version 7.0," (Ft. Levenworth: US Army TRADOC, 2009), 33.

actions developed in the [solution phase]… The Theory of Action is comprised of the completed problem propositions and [corresponding] stratagem[s]."[109] It is also key to note their problem proposition phase is built upon "the logic of transformation" from their preceding environment framing work. I suggest the logic of transformation gets rolled into a good theory of action.

In light of these authors, a theory of action is one way to make the concept of 'ways' more concrete to practitioners. To capture this literature review in a definition, a theory of action precedes a strategy to tailor *a multi-element fusion of concepts behind a strategy upon which it turns and works*. These concepts render a logic of transformation and combine to form a coherent and cogent theory of action tailored to substantiate strategic elements that will make up the comprehensive strategy. As such, the theory of action precedes the strategy approach and provides it with its logic (see Chapter 5). Examples of creative strategies seem to be creative at this theoretical level.

Operation Desert Storm provides a creative theory of action example at level 3 or military strategy. The work of Colonel (retired) John Warden represented a multi-element fusion of strategic concepts formed in a coherent theory of action tailored to Iraq's invasion of Kuwait. The general 'enemy as a system' and specific 'Five Rings Model' were strategic concepts inherited from the problem framing work. They were combined with strategic paralysis, parallel attack, and effects-based targeting, to tailor a coherent theory of action planners transferred into a successful solution ('Instant Thunder,' later called 'Desert Storm'). The campaign plans turned and worked on the strategic concepts in the pre-existing theory of action.

The Battle of Stirling Bridge provides an example of level 5 or, battlefield strategy. William Wallace of Scotland developed a theory for an infantry to defeat a cavalry head on. The theory involved eliminating the mobility of the horses, parallel warfare, and dividing to conquer. This theory of action resulted in the following strategic elements. Scotland combined the use of surprise engineering of the only bridge into Scotland, terrain that made the enemy cavalry immobile, high ground that surrounded and masked his brigade-sized force, timing of the dismantling of the bridge so that it cut the

[109] Trent Mills, "Applying Design at Us Army Central/Third Army: What Theory Recommends and What Reality Demands," in *Unpublished white paper* (2011), 27-29.

English infantry and cavalry in half, and men submerged in the river to kill those in between.[110] He crafted this multi-element strategy based on a creative theory of action tailored to his situation.

There are four related points that support this working definition for a theory of action. First, a theory of action places emphasis on concepts or 'ways,' not physical means. Means are essential to strategy but they are not inherently conceptual; means are inherently physical. A theory of action treats concepts as the strategic content and means as the vehicles of the concepts—not the other way around.

This theory of action can be derived by several methods. In some sense the method is not critical. Design is becoming the formal military method to develop an 'operational approach.'[111] Yet the literature has not grown to clearly ensure a theory of action is created for the approach. This is why it seems someone could potentially use soft systems methods, effects-based operations, theory-focused planning, discovery-driven planning or well-led open-planning methods as long as they arrive at a cogent theory of action to create the new reality—a theory upon which the operational approach turns and works. In my examples, neither Wallace nor Warden had any of these methods yet they still arrived at creative, fate-altering theories of action. Thus, the processes used are key but not king since the process is not synonymous with 'ways' in strategy.[112]

Somehow we know this is what strategizing *ought* to be about but that does not mean this is the norm. Yarger writes, "strategic concepts are often the central focus of a strategy. Some would label the concept as the strategy…"[113] There is a key 'is-ought' distinction here. By using 'often' the author implies this *is* our norm for developing

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[110] The Stirling Smith Art Gallery and Museum interpretive guides. Accessed 23 May 2009. Guides based largely on a history of the era, Henry and Hamilton, *Blind Harry's Wallace*.

[111] The 'operational approach' in the design method may or may not be synonymous with a theory of action depending on how the design is led. If the operational approach has more of a COA feel, then the operational approach is not necessarily a theory of action. If the operational approach contains the logic of transformation and strategic concepts upon which the operational approach derives its merit, then the two can converge. But currently in design there is no stage between problem framing and the operational approach that guarantees a creative and tailored theory of action upon which the operational approach is built.

[112] The method is key in two ways. First, the method can be one judged by how well it fosters the conceptual approach of ways-heavy strategy versus means-centered strategy. But method is very personal which is why the specific method is not critical. Second, significance of method increases in the absence of genius. But going back to the discussion on genius in the introduction, even genius can benefit by study of method and by being surrounded by those who are more talented due to good methods.

[113] Yarger, *Strategy and the National Security Professional: Strategic Thinking and Strategy Formulation in the 21st Century*, 141.

strategy. Yet if our strategic history is dominated by the concept of mass[114] and out-teching enemies,[115] then we actually tend toward means-centric strategizing. But if we read Yarger as normative—this is what *ought* to be—then this is the first step in understanding a theory of action. First and foremost, strategizing is about developing ways-dominant theories of action.[116] If we asked a strategy cell, 'what are your COAs' we should get a different answer than if we asked, 'what is your theory of action?' The answer to the latter should contain their pure ideas about the logic of transformation upon which the plan turns and works.

Second, the concepts fused in a tailored theory of action come from the entire lexicon of military theory and our imagination. J.C. Wylie picked up on this when he made the case for theory's role in strategy. With theory, "there would then be opportunity for the strategist to survey the situation confronting him, to judge whether this concept or that one or what combination of them would be most appropriate, and then to tailor his plans accordingly, having had the widest possible field for his intellect to operate in."[117]

This is exactly the goal in tailoring both theory and the resulting strategy—having the widest possible field for our intellect to operate within. This concept was also captured by Pierre Lessard, who wrote, "only after [the first principles] are visualized is it appropriate to start thinking in terms of method."[118] These first principles are analogous to the ideas in the tailored theory of action.

Third, by employing the word 'theory' in the phrase we import a series of clarifying concepts inherent to all good theory. As previously mentioned under 'strategic theory,' Hal Winton has articulated five functions of theory: to define, categorize, explain, connect (related fields/ideas) and anticipate. These are also good hallmarks for a theory of action. Does the unified theory define the strategic concepts, categorize them,

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[114] Russell Frank Weigley, *The American Way of War: A History of United States Military Strategy and Policy*, Indiana University Press paperback ed. (Bloomington: Indiana University Press, 1977).
[115] P. W. Singer, *Wired for War: The Robotics Revolution and Conflict in the Twenty-First Century* (New York: Penguin Press, 2009).
[116] There are many others ways this can be characterized: ways-heavy, ways-centered, ways-focused, etc. The idea is that strategic concepts are the centerpiece… not the means.
[117] Wylie, *Military Strategy: A General Theory of Power Control*, 30.
[118] Pierre Lessard, "Campaign Design for Winning the War... And the Peace," *Parameters*, no. Summer 2005 (2005): 45.

explain the meaning of action, connect ideas-environment-end state, and anticipate in some measure the near-term realities? A theory of action within a strategy should bear all these healthy functions of good theory.

Fourth, a theory of action may also help distinguish strategy from the related terms: course of action (COA) and plan of action. The phrase 'theory of action' is heavy on the 'concepts' aspect of the ways spectrum. COA and 'plan of action' do not inherently contain express strategic concepts. In fact, a *course of action* can easily become synonymous with a policy or a mechanics exercise in mapping 'from here to there.' One way to isolate the normal meaning of COA is by observing the function of a "concept of operations" (CONOPS) document that contains COAs. When one evaluates a CONOP we may ask 'does this actually have *concepts* or just COAs descriptions and policy taking the place of theory?' In the same manner, a *plan of action* can also go forward without any real theory of action at all.[119] In other words, a plan can be mechanically sound but lack the theory upon which the whole plan will turn and succeed.

Yet *theory of action* implies a conceptual fusion of strategic concepts into a coherent (and possibly creative) theory of how action will create a new reality. A theory of action focuses on ways, does so with concepts, is built on tailored strategic concepts, fuses multiple concepts as required, and then bears the characteristics of sound theory. By focusing on a combined plurality of creative ways, the phrase 'theory of action' best captures the first part in strategizing creative ways and serves as an important corollary to this thesis about where strategic creativity occurs in normal strategy development processes.

Clausewitz supports theory of action rationality with emblematic traits used in the essence of 'strategizing.' For example, he summarized the famous battlefield trait of *coup d' oiel* as "rapid and accurate decision" from "the inward eye" forming "the quick recognition of truth."[120] Describing how a strategist is or what one does, he also used

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[119] It *is* entirely possible that a planning process could arrive at a strategy containing a theory of action. This is where much confusion enters the process. Col (retired) Warden's theory of action for Desert Strom was developed in a planning cell. But this planning cell was within a strategy organization and populated with strategically oriented members like then Lt Col Dave Deptula. This was not a "turn-the-crank" planning organization. Thus, the initiation phase of the planning was marked by an intense effort to first develop a theory of action. This theory of action became the strategic logic of transformation for Operation Instant Thunder later named… Operation Desert Storm.

[120] Clausewitz, *On War*, 102.

words like strategic calculations,[121] intellectual effort, creative intellectual activity,[122] the inner eye,[123] imaginative intellect,[124] sound judgment,[125] creative ability,[126] true insight and mature judgment,[127] insights, broad impressions, flashes of intuition,[128] and an inquiring, discriminating and classifying eye.[129] Be it by genius or by talent, these traits all seem to point to the essence of strategizing with a little 's' which may be applied to all spheres of strategy. A way-centered concept such as a theory of action may help channel all of these important traits into developing deliberate strategy better. These traits combined with the 'general theory' of strategy will help tailor 'special theories' of strategy to our situations as Clausewitz implied.

Strategic Elements

Once a theory of action has been tailored to a situation, it sheds light on the strategic elements that come next. These strategic elements are action themes of an overall strategy that begin to get detailed about what actions should be taken. These strategic elements are described by a number of authors, in different ways, and on different levels of strategy. Warden calls them *key descriptors* of system change to design a future picture.[130] Yarger calls these elements *key strategic factors*. These are "factors the strategist determines are at the crux of interaction within the environment that can or must be used, influenced, or countered to advance or protect the specified interests."[131] This definition is reminiscent of Ohame's *key factors of success* which are, "operating areas that are decisive for the success of your particular business."[132]

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[121] Ibid., 131.
[122] Ibid., 133.
[123] Ibid., 137.
[124] Ibid., 140.
[125] Ibid., 146.
[126] Ibid., 148.
[127] Ibid., 153.
[128] Ibid., 185.
[129] Ibid., 528.
[130] John A. Warden and Leland Russell, *Winning in Fasttime: Harness the Competitive Advantage of Prometheus in Business and Life* (Montgomery, Ala.: Venturist Publishing, 2002), 66-68.
[131] Yarger, *Strategy and the National Security Professional: Strategic Thinking and Strategy Formulation in the 21st Century*, 124. Italics added.
[132] Ken ichi Ohmae, *The Mind of the Strategist* (New York, NY: Penguin Books, 1983), 42.

Another strategic element concept comes from the ARCENT design lessons learned paper. The author Major Trent Mills explains that a theory of action flows into *stratagems*. We normally think of the first definition for stratagem as, "a military

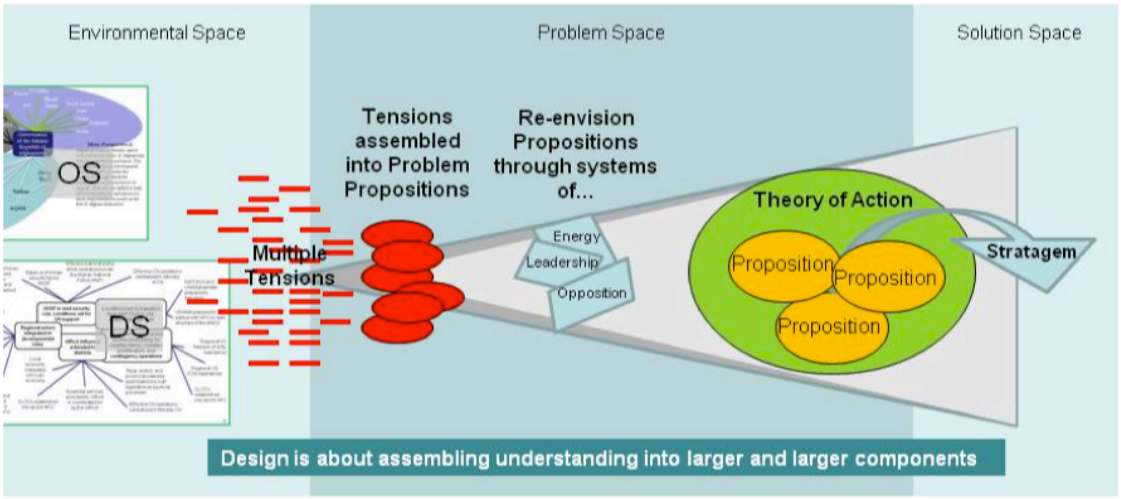

Fig 5*:* "General path to through the Problem Space through inductive steps to create larger and larger pieces of the puzzle." Reprinted with permission courtesy of Trent Mills. Source: Mills, Trent. "Applying Design at Us Army Central/Third Army: What Theory Recommends and What Reality Demands." In *Unpublished white paper*, 2011.

maneuver designed to deceive or surprise an enemy."[133] The ARCENT paper rightly leans on the secondary meaning: a clever idea or scheme. For the ARCENT team, the theory of action is comprised of 'propositions' and these propositions ideally lead to 'stratagems' (see figure 2). Then, "the stratagem is the central and unique theory that best represents the path to transformation."[134]

Another strategic element type can be drawn from the new primer on design from the Joint Warfighting Center. This work is articulate about a strategy being comprised of *conditions* and describes their function. "These conditions form the basis for decisions that ensure operations progress consistently toward the objectives that represent the desired state of the operational environment when operations end."[135] This is a very good description for the function of any element in an overall strategy (if you replace the term 'condition' with the previously discussed terms, the sentence still works). Strategic elements are also called 'conditions' in JP 5-0[136] and sometimes synonymous with

[133] The Free Dictionary Online, "stratagem." http://www.thefreedictionary.com/ (accessed 10 April 2011).
[134] Mills, "Applying Design at Us Army Central/Third Army: What Theory Recommends and What Reality Demands," 30.
[135] Joint Warfighting Center, "Design in Military Operations: A Primer for Joint Warfighters," 9.
[136] JP 5-0. Joint Operation Planning, 26 December 2006, III-9f, III-12b.

"*effect*" in the same document.[137] And as previously mentioned, Hayward's design summary characterizes "elements" or "assemblages" that flow from a theory of action.

To sum, there are no less than seven terms describing the sub-elements of a comprehensive strategy.[138]

1. Key descriptors of systems change
2. Key strategic factors
3. Key factors for success
4. Stratagems
5. Conditions
6. Strategic effects
7. Elements/assemblages

The central idea in these seven terms--independent of level--is a description of *strategic elements* which comprise a comprehensive strategy. These strategic elements form action concepts paired with reality that will transform conditions toward the desired system or ends (examples given in Chapter 4). If there are nuances between these six terms it is possible to think of strategic elements taking on any or all of these characteristics. However, without a theory of action upon which they are based, there is always a potential to lose the *idea*-focus and drift into COAs without performing theory work—especially in the COA-centered JOPP framework (unless something precedes JOPP that results in a theory of action).[139]

The nature of a strategic element is varied. Yet whether they are called key descriptors, key strategic factors, stratagems, conditions, or strategic effects--we are talking about *discrete strategic concepts built around factors that explain what set of themes will shape actions.* The strategic elements are aligned with the theory of action to form a coherent way-centered strategy to transform reality toward an end or desired system.

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[137] JP 5-0. Joint Operation Planning, 26 December 2006, III-13e, III-14f. The confusion in this section of JP comes in the blurred meaning of 'ways.' In section III-15g the implication is "strategic" effects but that word is not used. Then in section 'g' we are told the description of the effect "should not specify ways" even though the effect description may contain strategic concepts, which are also ways! This is another example of confusion over the all-important meaning of ways! The authors probably meant, the effects description "should not specify COAs."

[138] Strategizing at level 4 has related terms like decisive factors, decisive points, critical factors and centers of gravity… which arguably can be found at multiple levels, not just level 4.

[139] I take this to be the same reason the US Army realized the need to develop military design in order to pair it with JOPP.

Transfer Value and Change in Strategic Concepts

When building special theories of action and crafting strategic elements we quickly come down to the most fundamental subject about practical strategic creativity. Recall the working definitions of theorizing (tailoring theory) and strategizing (crafting creative ways). Theorizing fits the theory of action stage where strategizing fits with the strategic element stage. Yet, both of these similar steps in strategy development depend on using some mix of past and new concepts. Creatively (and critically) combining the right mix of past and new concepts comes to a Strategy proposition called *transfer value and change*. This proposition states every strategic situation will contain some mixture of past ideas with transfer value from general strategy theory and new ideas from our imagination in keeping with changeable realities.[140]

The possibility of common strategic concepts in a sea of change has interesting parallels in other authors like Thomas Kuhn, Colin Gray and Donald Schön. In the philosophy of science, Kuhn names "the essential tension" as science between convergent thinking (tradition) and divergent thinking (revolution).[141] In the nature of Strategy, this transfer value and change concept is also reflected by Gray who wrote, "every war is both unique yet also similar to other wars."[142] Finally, in educational psychology Donald Schön described learning as "to see the unfamiliar situation as both similar to and different from the familiar one, without at first being able to say 'similar' or 'different' with respect to what."[143] In all three cases, what is similar provides the transfer value while what is unique provides the need for conceptual change.

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[140] I first heard the phrase "transfer value and change" in lecture from Dr. Hal Winton. He learned the usefulness of the phrase "transfer value" from Wylie who wrote. '[Theory] collect(s) and organize(s) experiences [to help] sort out which of them may have a valid transfer value to a new and different situation… and then apply it to the reality with which he is faced" (*Military Strategy: A General Theory of Power Control*, 31).

[141] Thomas S. Kuhn, *The Essential Tension: Selected Studies in Scientific Tradition and Change* (Chicago: University of Chicago Press, 1977), 226,27.

[142] Gray, *Modern Strategy*, 127.

[143] Schön, *Educating the Reflective Practitioner: Toward a New Design for Teaching and Learning in the Professions*, 67.

This leads Winton to instruct, "every strategic situation is some mixture of transfer value and change and the strategist must sort the difference."[144] When sorting the difference the strategist is equipped with the full suite of concepts spread across general strategic theory from Thucydides forward. Yet these concepts must be transferred and tailored to the current situation and added to new ideas as reality dictates. To explore the criticality of this premise for creativity in strategy we can illustrate the transferability of one concept from Thucydides.

Thucydides captured a pattern of three core motivations of nations. In his history of the Peloponnesian Wars, an Athenian delegation engaged the Spartans in public dialogue about the emerging road to war between the two nation states. As the Athenians defended the existence of their growing empire they stated,

> "it follows that it was not a very remarkable action, or contrary to the common practice of mankind, if we did accept an empire that was offered to us, and refused to give it up under the pressure of three of the strongest motives, *fear, honor and interest*."[145]

These three motivations of national life have been repeated or restated in many ways across continents and time. As such, these three national motives are an example of a Strategy concept with great transfer value from the past. The following chart

[144] Dr. Hal Winton, SAASS 600 Lecture (lecture, School of Advanced Air and Space Power Studies, Maxwell Air Force Base, Alabama, 20 August 2010.
[145] Thucydides, Robert B. Strassler, and Richard Crawley, *The Landmark Thucydides: A Comprehensive Guide to the Peloponnesian War* (New York: Free Press, 1996), 43.

Table 2: Replications of Thucydides Triad Concept of National Motives

Synthesis	Existence	Meaningful Existence	Progressive Existence
Thucydides	Fear	Honor	Interest
Locke[146]	Life	Liberty	Pursuit of property
Jefferson[147]	Life	Liberty	Pursuit of happiness
Bull[148]	Life	Promises	Things
Wendt[149]	Survival	Autonomy and collective self esteem	Economic well being
Smith[150]	Fear	Prestige	Interest
Fuller Biological[151]	Security	Continuity	Maintenance
Fuller National	Security	Liberty	Prosperity
Fuller Moral	Self-preservation	Self-sacrifice	Self-assertion
Fuller Man's Activity	Stability	Cooperation	Activity
Fuller Human Composition	Body	Soul	Mind

graphically depicts the similarity of ideas by various authors. Some authors stated these three social goals as motives (Thucydides) while others as ends (Locke and Jefferson). Still others reflect the triad in various aspects of human existence (Fuller). When viewed together the similarity across time and space hints toward a concept with great transfer value. On top of the chart, I offer a synthesis of the triad to unite various terms in each column: existence, meaningful existence, progressive existence. These synthesis terms are intended to provide a functional link, if you will, for the similarity of concepts used by various authors.

Reading down each column, the apparent replication of Thucydides triad is an example of a political science concept with great transfer value. For example, in grand strategy discourse it is common to read discussions about the interests of other nations or our fears. But how often do we give equal attention to the fears of other nations? How

[146] John Locke and Robert Filmer, *Two Treatises on Civil Government* (London, New York,: G. Routledge and sons E. P. Dutton and co. pref., 1884), second treatise, chapter VII.
[147] Thomas Jefferson and Richard S. Poppen, *The Declaration of Independence and Letters* (St. Louis, Mo.,1898).
[148] Hedley Bull, *The Anarchical Society: A Study of Order in World Politics*, 3rd ed. (Basingstoke: Palgrave, 2002), 4.
[149] Wendt, *Social Theory of International Politics*, 198, 243.
[150] M.V. Smith, *Ten Propositions Regarding Space Power*, (School of Advanced Air and Space Power Studies Thesis, June 2001), 22.
[151] J.F.C. Fuller, *The Foundations of the Science of War* (1926). These concepts are discussed on the following pages in the order listed, 65, 69, 116, 81, 69.

often do we weigh what *they* honor? Is there equal attention given to our fears, honors and interests in common discourse or do fears and interests dominate? Or how often is accruing moral capital offset with spending it on interests and fears? Since questions lead to answers, answers to solutions and solutions to strategies, the kinds of questions we ask can lead to different conclusions. In this way, using Thucydides triad leads to important questions that may otherwise be avoided by a strategist. Thus, the transfer value of such ideas can be enormous and this is why Colin Gray calls this triad one of the "skeleton keys" in Strategy.[152] Yet it is but one concept in a sea of concepts a strategist can use in Wylie's "widest possible field" for our intellect to craft tailored theories that mix transfer value and change.

Thucydides' triad is used here to establish the concept of transfer value in strategic content with an illustration. This does two things here. First, it supports the validity of transfer value of past principles in strategy theory. This conclusion cannot be assumed in the post-modern humanities. Second, it points the way to a key corollary of this research about what we use to be creative in strategy. Creative does not mean baseless. The concepts upon which a plan will turn and work will be *both* transferred from general strategic theory and imagined anew. Those concepts pertaining to timeless patterns in general strategic theory serve as our "pattern language" for baseline strategic creativity which is some part timeless concepts (see Chapter 5).

While the transferability of timeless ideas in Strategy provides the possibility of having a general theory useful for practitioners, I hypothesize the same can be said of strategizing. The "how to" of strategizing may involve a curious mixture of common elements across the professions and aspects unique to each one. The following chapters explore what is common about strategizing across the professions starting with the strategizing process or steps found in each discipline. In doing so I am analyzing strategy with a little 's' instead of strategy with a big 'S' as in Grand Strategy or Military Strategy.[153]

In closing, the diffusion of the word 'strategy' has left military analysts as frustrated as a theologian trying to restore the meaning of the word 'love.' Beatrice

[152] Gray, *The Strategy Bridge: Theory for Practice*, 280.
[153] Heuser, *The Evolution of Strategy: Thinking War from Antiquity to the Present*, 3, 28.

Heuser sources Hew Strachan's Oxford lectures and newsletters when discussing confusion over the meaning of the word 'strategy.' Strachan stated there are two ways to see the dissolution of the word 'strategy': deplorable or something to work around.[154] I'd like to suggest a third. Perhaps the diffusion of the word is to be studied. Perhaps there is a good reason why 'strategy' with a little 's' has blurred across the professions as its own meta-discipline. Since the word originated in the military, it is easy for military thinkers to default into the 'deplored' camp rather than ask, 'why have the other professions so readily adopted our concept?' More importantly, here I wish to understand what they have learned by doing so.

The following take-aways are interpretive for the rest of the analysis, moving forward from abstract theory to the more concrete models. The levels of strategy discussion contended that strategizing happens at multiple levels of organization. Amidst strategy definitions, strategizing can be considered crafting creative *ways* to use means to achieve ends with a tailored theory of action at any level of strategy. I argue strategy is the work that precedes planning simply to further isolate the subject of this study (while combining the two concepts again in Chapter 4 for completeness).

Regarding ends, ways, and means, the focus is on ways in 'intentional' strategy development with an eye on unrealized strategy due specifically to lack of creativity in *ways*—not lack of creativity in general. The heart of creative ways is tailoring theory as Clausewitz recommends. A key form of theorizing is the theory of action, which provides a strategy with its logic. This theory then informs the strategic elements that are creative subsets of a comprehensive strategy and become the specific themes that will shape operations. When performing this tailoring, timeless concepts come from general strategic theory (e.g. Thucydides) while new ones come from our imagination.

[154] Ibid., 28.

Chapter 2

Commercial Methods

I do not think there is any thrill that can go through the human heart like that felt by the inventor as he sees some creation of the brain unfolding to success.

Nikola Tesla

Here I survey purposeful activity models in engineering, business, architecture/ design trades, and economics to pursue understanding from an interdisciplinary approach. My question in the backdrop of these models is how they do—or do not—foster strategic creativity in their stages when they serve as de facto strategy development models. For while strategy development methods alone—express or implied—are insufficient to guarantee creativity, they are the practical context within which strategic creativity can take place. As such, Chapter 2 will have more background depth than Chapter 3. The real goal of both chapters is a synthesis in Chapter 4 to identify the key stages in the models where creativity in ways can have the most impact on the outcomes.

ENGINEERING

Engineers and strategists have much in common. Both fields are relatively new in human history as formal disciplines even though both were performed informally throughout history. The first US PhD in Engineering was conveyed in 1863[1] and the first strategy degrees by such a name, are beginning to appear.[2] Both fields may draw on many sub-disciplines for success. Thus, both specialize in synthesis over analysis.[3] Both must be "normative" to function. Both must have a curious mixture of transfer value from the past and new discoveries for the current problem at hand. And our lexicon has tolerated this philosophical comparison in such phrases as, "engineer a comeback," "engineer a solution," and "engineer a better world."

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[1] Wikipedia, "Engineering." http://en.wikipedia.org/wiki/Engineering#History. Accesses 29 December 2011, 1700 hours.
[2] Dr. Stephen Chiabotti, personal conversation, School of Advanced Air and Spacepower Studies, 8 Feb 2011.
[3] Simon, *The Sciences of the Artificial*, 4.

In engineering I'll review four purposeful activity models: engineering method, design method, hard and soft systems methods. First, Walter Vincenti conjectured there might be an engineering method separate and distinct from scientific method. *What Engineers Know and How They Know* it is a fascinating work that traces the engineering process from conceptualization down to the flush-riveted joints that hold aircraft together. Studying and living that history unveiled a process to him that is worth the attention of strategists.

Second, Herbert Simon captured some philosophical essence of design from a computer engineering perspective. His classic capture of design philosophy in *The Science of the Artificial* is still used in engineering departments for a theoretical treatment of the subject. This work began as a Karl Taylor Compton lecture series at MIT in 1969.[4] The second edition was published in 1981 and the third in 1996 before he died at the age of eighty-four. His work also contains a stepwise process worth comparing.

The third and fourth models come from systems practice in systems engineering. Systems thinking is a meta-discipline with an old but un-gathered history. Solomon characterized the water cycles before the discipline of hydrology.[5] Ctesibius created the first floating valve feedback system later found regulating the Roman aqueducts and our toilet-ball floats today.[6] Systems thinking also appears in several methods but takes the form of an engineering approach in hard and soft systems methodologies.

What Engineers Know. This classic by Walter Vincenti captures fundamentals about the engineering method.[7] The work was first published in 1990 when Walter Vincenti was 73 years old after a full career of aeronautical engineering and instructing. Thus, the observations carry that richness of a lifelong experience with a subject. The five case studies used for evidence in this book come from the first half of the 20th century, 1908-1953. During this period the author worked at the National Advisory

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[4] http://compton.mit.edu/pages/history/, accessed 25 January 2011, 1750. The purpose of these lectures are to bring the MIT community into direct contact with the important ideas of our time.
[5] Holy Bible, New International Version, Ecclesiastes 1:5-7.
[6] Dennis Sherwood, *Seeing the Forest for the Trees: A Manager's Guide to Applying Systems Thinking* (London: Nicholas Brealey Pub., 2002), 20.
[7] As a practical note about sourcing, I authored the Wikipedia entry about this book. Thus, the similarity of sources could concern a reader if they came upon this section of my thesis and the Wikipedia entry. I launched the Wikipedia article after researching this book and several personal conversations with Walter Vincenti for the research of this thesis.

Committee for Aeronautics (NACA) from 1940-1957.[8] Four of the five case studies he uses were first published independently in *Technology and Culture* between 1979-1986. During this era other authors were beginning to refute the view of engineering as applied science.[9] Then in 1990 Dr. Vincenti used his five case studies to support this newer view of engineering as a knowledge-generating discipline like other sciences. In 2010, this book was translated into Turkish--its first foreign language translation. As of 2010, *What Engineers Know* was also being used in the curriculum for the United States Air Force strategy school called SAASS.

This book is a historical reflection on engineering practice in US aeronautics from 1908-1953. This period represents the dawn of aviation and, as such, was fraught with uncertainties and numerous paths to many possible worlds. The book captures two main conclusions from this kind of period. The first order conclusion is about "what engineers know." Vincenti argues that engineering often demands its *own* scientific discoveries. Thus, engineering should be understood as a knowledge-generating activity that includes applied science but is not limited to applied science.

The second order conclusion of this book pertains to "how engineers know." The same five case studies reveal patterns in the nature of all engineering. Thus, from these cases we also learn an "epistemology" of engineering that could point the way to an "engineering method" as something potentially distinct from scientific method.[10] Walter Vincenti ends the work with a general "variation-selection model" for explaining the direction of technological innovation. Vincenti's insights led Dr. Michael Jackson, author of *Structured Design* and *Problem Frames*, to conclude a keynote address to engineers with the statement, "Read Vincenti's book. Read it carefully. Read it one hundred times."[11]

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[8] American Heritage. http://www.americanheritage.com/articles/magazine/ it/1997/3/1997_3_20.shtml, accessed 23 Jan 2011, 2245.
[9] Wiebe E. Bijker, Thomas Parke Hughes, and T. J. Pinch, *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology* (Cambridge, Mass.: MIT Press, 1987), 69.
[10] Vincenti, *What Engineers Know and How They Know It: Analytical Studies from Aeronautical History*, 160-61.
[11] Ian Alexander book review http://i.f.alexander.users.btopenworld.com/reviews/vincenti.htm, accessed 23 Jan 2011, 2300.

The profession of "engineering" encompasses a wide scope of practice, thus, Vincenti narrows the scope of the case studies in three ways.[12] First, viewed end-to-end, the engineering process contains three phases including design, construction/production and operation. These cases come from the design phase of engineering. Second, design can be categorized as normal or radical. These case studies pertain to normal design. Third, normal design itself is multi-leveled. These levels proceed from project definition down to overall design, major component design, subdivision of component design, and highly specific problems (like planform, airfoil and high-lift devices). These five case studies come from this lower level. Thus, when combined the scope of the case studies is design, normal design and highly specific problems at the lowest level "to help redress the neglect of this large and essential area."[13]

Walter Vincenti makes six key observations about an epistemology of engineering. One that could pertain to strategy theory is the iterative engineering discovery process seen in the development of flying-quality specifications.[14] This pattern is referred to as "Seven Interactive Elements of Engineering Learning." The **bold** in this list is original to highlight what is core to engineering, not just aeronautics. One could think of the boldface as the nature of engineering and the rest, the specifics associated with the character of aeronautical engineering.

- **Familiarization with** vehicle and recognition of **problem**.
- **Identification of** basic variables and derivation of analytical concepts and **criteria**.
- **Development of** instruments/piloting techniques for in-flight **measurements**.
- **Growth** and refinement **of** pilot **opinion** regarding desirable flying qualities.
- Combine results from 2-4 into a deliberate **scheme for** flying-quality **research**.
- **Measurement of** relevant flight **characteristics** for a cross section of aircraft.
- **Assessment of results** and data on flight characteristics in light of pilot opinion to arrive at general specifications.

From the bold text we derive our first purposeful activity model for comparison with others. These seven stages from the field of engineering serves as one cognitive approach to developing a wayahead for a problem-centered design situation. Walter

[12] Vincenti, *What Engineers Know and How They Know It: Analytical Studies from Aeronautical History*, 6-9.
[13] Ibid., 9.
[14] Ibid., 102.

Vincenti's other observations on the epistemology of engineering will also be considered in Chapter 5.

The Sciences of the Artificial (1996). Herbert Simon also made fundamental observations about purposeful activity models. In his case, the observations are drawn from a stunning range of subjects. As mentioned in the introduction, he is known for advancing artificial intelligence, began his academics in political science, established models of thought in psychology, captured the philosophy of design, and earned a Nobel in economics. But because the subject of the book under discussion is "the artificial" and engineering is the science devoted to the artificial, I gently lay this book within engineering.

The Sciences of the Artificial began as Karl Taylor Compton lectures in 1968.[15] These lectures are designed to bring the university into contact with the ideas of its time. This resulted in the first edition. The second edition in 1981 resulted from H. Rowan Gaither lectures at University of California--Berkley. Here the work expanded into other fields. The third edition in 1996 updated the work for complexity, a subject about which Simon believed in and had already written about in 1962.[16]

The key section for his purposeful activity considerations comes in a classic chapter on the science of design. To this day, it is arguably one of the best philosophical captures of design philosophy. Preceding this discussion in Chapter 4, Simon makes important assertions as context for design. First, while this seems basic it is not: "efforts to solve a problem must be preceded by efforts to *understand* it."[17] In computer science, the military, and engineering this is called problem framing. To say understanding a problem precedes solving, is far removed from the successful action of doing so. Simon's background point will return to us in Chapter 4 regarding situation mastery.

Simon's early work involved decision making and models of thought. At the most basic level of his work he generated stages of decision making. These stages are, in

[15] Simon, *The Sciences of the Artificial*, xi.
[16] Ibid., xiii.
[17] Ibid., 94. Italics added to distinguish mere familiarity with a problem from true understanding.

effect, something like our Military Decision Making Process (MDMP) for basic scientific-decision making theory. These basic stages are:[18]

1. Intelligence gathering
    a. Search environment for condition that calls for decision
2. Design
    a. Invent
    b. Develop
    c. Analyze
3. Choice
    a. Select a particular course
4. Review

In the fourth addition of his original PhD thesis he summarized years of thought to include three more considerations.[19]

1. Setting an agenda
2. Representing the problem
3. [Adding] Discovery to choice [an amplification]

From here, we should also explore his detailed thoughts on the design step in particular.

In 1969, Simon was speaking right on the edge of a science of design. He describes this science taking off in the mid-70s with the notable Design Research Center at Carnegie Mellon University.[20] Simon notes the design theory was "aimed at broadening the capabilities of computers to aid design, drawing upon the tools of artificial intelligence and operations research."[21] By pointing toward some essential elements of design theory, Simon is a lucrative source of transfer value to strategy design.

Simon's overall concept is "to think of the design process as involving, first, the generation of alternatives and, then, the testing of these alternatives against a whole array of requirements and constraints."[22] For simple design problems follow this basic model called the "diet problem." The goal is to "maximize a function subject to constraints" for a class of problems that can be handled with "mathematical formalism known as linear

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[18] Herbert A. Simon, *The New Science of Management Decision*, Rev. ed. (Englewood Cliffs, N.J.: Prentice-Hall, 1977), 40-46.
[19] ———, *Administrative Behavior: A Study of Decision-Making Processes in Administrative Organizations*, 4th ed. (New York: Free Press, 1997), 77, 122-26, 63.
[20] http://www.ices.cmu.edu/, accessed 27 January 2011. The Carnegie Mellon center is now called ICES, The Institute for Complex Engineered Systems.
[21] Simon, *The Sciences of the Artificial*, 114.
[22] Ibid., 128, 29. This process is referred to as "decomposition."

programming."[23] This following process amplifies the macro method described above with an emphasis on the nature of design. If Simon were to teach design in "the science of the artificial," he would include these topics. [24]

1. THE EVALUATION OF DESIGNS
    a. Theory of evaluation: utility theory, statistical decision theory
    b. Computational methods:
        i. Algorithms for choosing optimal alternatives such as linear programming computations, control theory, dynamic programming
        ii. Algorithms and heuristics for choosing satisfactory alternatives
    c. The formal logic of design
        i. Imperative and declarative logics
2. THE SEARCH FOR ALTERNATIVES
    a. Heuristic search: factorization and means-ends analysis
    b. Allocation of resources for search
3. REPRESENTATION OF DESIGN PROBLEMS

When the situation becomes more complex, there are other considerations that depart from this ideal. The first is to introduce one of Simon's lifelong contributions: the concept of *satisficing*. When faced with an unknown set of alternative approaches, selective searching results in "good enough" decisions or ones that "satisfice."[25] "We satisfice by looking for alternatives in such a way that we can generally find an acceptable one after only moderate search."[26] This leads to one logic of searching for alternatives. At the same time, I'll infer in chapter 5 that satisficing may also inhibit creativity thus leading to lower idea potentials between what is chosen and what could have been. This passing what 'could have been' with better thought can be a source unrealized strategy.

Satisficing is exacerbated by complexity. If the search for solutions were simple and "additive" it would be like learning how to walk until you can. But the real world is not additive. This introduces the essence of uncertainty. "Under these circumstances one can never be certain that a partial sequence of actions that accomplishes certain goals can be augmented to provide a solution that satisfies all the conditions and attains all the goals (even though they be satisficing goals) of the problem."[27] This point is very

[23] Ibid., 117.
[24] Ibid., 116-34.
[25] Ibid., 27.
[26] Ibid., 120.
[27] Ibid., 124.

reminiscent of Walter Vincenti's unsureness in selection due to blindness of variation. When we select options, we do so not only with incomplete knowledge as a basis, but also incomplete knowledge of outcomes in the absence of trial and error.

This part of design is the most mysterious and here Simon leaves us with a few guideposts: 1) [continue the] "search" for options rather than "assemble" solutions, 2) "explore several tentative paths" instead of pursuing ones at length that seem most promising at first,[28] 3) precedence and sequences of design elements should be in the design theory,[29] and 4) "solving a problem simply means representing it so as to make the solution transparent."[30] Another overall hint is the search for alternative designs should be seen more generally as "gathering information about the problem structure," which sounds like a problem framing mindset.[31]

In conclusion, Simon also highlights the universality of design. He suggests that while there may be musicians that are mathematically inept and engineers that are tone-deaf they should both be able to carry on a conversation about design theory. This is a sweeping idea: all professionals design as a common activity. The human acts of thinking, judging, creating and deciding are in the anatomy of design. As such, "the science of design… [should be] a core discipline for every liberally educated person."[32]

Hard Systems Engineering and Soft Systems Engineering. Systems thinking belongs to no discipline. It is a truly interdisciplinary skill but there are masters of the trade. The systems engineer is one such set of experts so it particularly useful to compare purposeful activity models born from this profession.

Today, the popularity of "soft" systems methodology could lead us to miss the importance of hard systems engineering. Bell Laboratories was the first home of hard systems engineering in the 1940s. By 1962 David Hall from Bell Labs had written the textbook: *A Methodology for Systems Engineering*. The goal of this paradigm included

[28] Ibid.
[29] Ibid., 129.
[30] Ibid., 132.
[31] Ibid., 125.
[32] Ibid., 138.

"organized creative technology."[33] A purposeful activity model comes from Hall's five main stages of systems engineering. [34]

1. Systems Studies (Program Planning)
    a. The first aim is to assist management in reaching agreements
    b. The second aim is to create an extensive background of information on which subsequently to build
2. Exploratory Planning (Project Planning I)
    a. Problem definition – definition of a need
    b. Selecting objectives - definition of value system for needs
    c. Systems synthesis – creation of possible alternative systems
    d. Systems analysis – analysis of hypotheticals in light of the objectives
    e. Systems selection - selecting the most promising alternative
    f. Communicating results
3. Development Planning (Project Planning II) – up to the prototype stage
4. Studies During Development (Action Phase I)
5. Current Engineering (Action Phase II) – system realization

An additional version of the same hard system method was produced by Rand, also in five stages.[35]

1. An objective or objectives we desire to accomplish.
2. Alternative techniques or instrumentalities (or 'systems' by which the objective may be accomplished).
3. The 'costs' or resources required by each system.
4. A mathematical model or models; i.e. the mathematical or logical A mathematical model or models; i.e. the mathematical or logical objectives, the techniques and Instrumentalities, the environment, and the resources.
5. A criterion, relating objectives and costs or resources for choosing the preferred or optimal alternative.

The alternative soft systems methodology (SSM) was tailored to the concept of social or human purposeful activity systems. The key difference between hard and soft systems methods is a mindset toward complexity and quantum realities of nature. Hard systems methods view systems in nature that can be understood and engineered. The SSM views systems in nature that are complex and can be learned.[36]

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[33] Arthur David Hall, *A Methodology for Systems Engineering* (Princeton, N.J.,: Van Nostrand, 1962), 3. Note that the hard systems method was not set forth as 'uncreative' or 'anticreative' as proven by this description of the method as organized creativity.
[34] Ibid., 7-11. Stage amplifications taken from Checkland, *Systems Thinking, Systems Practice*, 130.
[35] Checkland, *Systems Thinking, Systems Practice*, 136.
[36] Ibid., A10-A11.

Checkland's work is multi-layered and should not be limited to the seven stages in SSM. In fact, in *Soft Systems Methodology in Action* he proposes the possibility of these seven stages occurring in four different "methodological cycles" or four different iterations.[37] Nevertheless, the basic stages and combined cognitive aids are key to purposeful human activity systems.

The seven stage SSM with associated outputs of each stage.[38]

1) The problem situation unstructured
    - Begin rich picture building[39]
    - Analysis one, two, three (the intervention, social, political).[40]
2) The problem situation expressed
    - A rich picture
    - List of relevant (sub) systems

CROSS INTO SYSTEMS THINKING

3) Root definitions of Relevant Systems[41]
    - Root definitions evaluated by CATWOE[42]
4) Conceptual models (verbs).
    - Relevant systems described with structuring verbs

CROSS BACK INTO THE REAL WORLD

5) Comparison of models with the problem situation expressed.
    - Agenda of possible changes (by comparing conceptual models with the original descriptive rich picture.
6) Feasible, desirable changes listed.
    - List changes judged desirable and feasible
7) Action to improve the problem situation chosen.

In practice the SSM seven can be boiled down to four. This can be referred to as the "four-activities model."[43]

1. Finding out about a problem situation, including culturally/politically;
2. Formulating some relevant purposeful activity models;
3. Debating the situation, using the models, seeking from that debate both

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[37] Checkland and Scholes, *Soft Systems Methodology in Action: A 30-Year Retrospective*, 60-81.These four method cycles are characterized as relevant systems through modeling, forming new perspectives, transition from 'whats' to 'hows,' and widening the debate toward taking action.
[38] Checkland, *Systems Thinking, Systems Practice*, 162-83, 253.
[39] Ibid., A16. Making drawings to represent understandings is a key characteristic of SSM and a starting point for framing problems and solutions.
[40] Ibid., 194-98.
[41] Ibid., 224. This page describes 'how' to do this.
[42] Ibid., 224, C = customers, A = actors, T = transformation process or root definition, the key part, W= Weltanschauung or world view to be conscious of background theory that shapes practice, O = ownership, E = environmental constraints.
[43] Checkland, *Systems Thinking, Systems Practice*, A15, 7, 42.

    a. changes which would improve the situation and are regarded as both desirable and (culturally) feasible, and
    b. the accommodations between conflicting interests which will enable action-to-improve to be taken;
4. Taking action in the situation to bring about improvement.

When placing SSM into its own system, it can also be expanded to sixteen stages that more completely capture the learning emphasis of this method.[44]

1. Decide issues concerning mounting and doing [the mission].
2. Build up 'analysis 2 and 3' (social and political context).
3. Do 'analysis 1' (the intervention itself).
4. Build up picture of the problem situation.
5. Select relevant system in the form of root definitions and CATOWE.
6. Build conceptual models.
7. Compare models with perceived reality; look for changes.
8. Decide, desirable, feasible changes.
9. Take action.
10. Define criteria for efficacy, efficiency, effectiveness (~measures of performance).
11. Monitor stages 1-9.
12. Take control action.
13. Appreciate this and previous [strategy experiences].
14. Reflect upon the learning from this [strategy].
15. Appreciate current view of use of SSM.
16. Capture learning for future use.

There are two important steps preceding the seven stages of SSM.[45] These are referred to as "considerations outside the stages of SSM itself."[46] First, considerations concerning the study as a whole like "who would do it, how would they do it, how would SSM be used, etc." The second pre-consideration is appreciation of the situation, which sounds much like the "commander's appreciation," now called the "commander's estimate" in military methods.

SSM captures an inspiring range of strategy tasks beyond problems *per se*. In the introductory problem discussion we see that real strategy demands have a range that includes work other than pure problems like: organizational transformation, proactive opportunity strategies and long-term vision statements. Peter Checkland adds such variations on his core method. Five different aims for systems practice include

[44] Checkland and Scholes, *Soft Systems Methodology in Action: A 30-Year Retrospective*, 294.
[45] Ibid., 79-80.
[46] Ibid., 79.

clarification of concept, survey areas of concern, historical analysis, improve performance in an ill-defined situation, and system re-design.[47]

These aims happen to match the fuller range of strategy work performed by staff AOs in the military. 'Clarification of a concept' is like a Concept of Operations (CONOP). 'Survey areas of concern' is like the Chairman of the Joint Chiefs of Staff Risk Assessment. 'Improve performance' is like building partnerships or opportunity strategies. And system re-design is like organizational transformation strategies. Such strategy aims are all about improvements in a situation but not all represent problems or crises. As we continue one theme of this research, problem-solving methods may limit the full scope of cognitive work needed for broader improvements in situations.

BUSINESS

If strategy began in the military by definition (Gk. *Stretegos* = General), why does the business world generate much more literature about it? There are a number of possible reasons. First, while the stakes are completely different, business is in constant conflict where as wars happen in episodes. More and more, military situations like Korea are marked by perpetual conflict but there is a status quo of sorts called the 38th parallel. But in business the battle continuously rages like one global form of Verdun. Mintzberg notes, in military strategy you can grow strategy acumen before or after war but "in business, there is usually no before, during, or after."[48] There is no time when a business declares its war over per se. They are constantly managing context for advantage with no end in sight. The business phrases "dog eat dog world" or "the jungle out there" capture the perpetual state of war. As such, there is a corresponding perpetuity for business focus on strategy theory and practice.

A second reason may be the motive landscapes of each discipline. If a business has other motives than profit they are add-ons since the solvency of the corporation is *sin quo non* for pursuing any additional goals.[49] If that is true, the profit motive is a

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[47] Checkland, *Systems Thinking, Systems Practice*, 194.
[48] Mintzberg, Ahlstrand, and Lampel, *Strategy Safari: The Complete Guide through the Wilds of Strategic Management*, 5.
[49] Peter Drucker would critique this view saying "making money for an company is like oxygen for a person; if you don't have enough of it your're out of the game." Peter Senge extends this analogy to critique this focus. "Companies who take profit as their purpose are like people who think life is about

profound push on human ambition. Such ambitions may also drive a discourse to the bottomlines of success which is invariably the idea of strategy.

A third influence is the profitability of the book industry for business. There are approximately 2,000 new books a year on management in the US.[50] This is not to even touch what is being generated in Europe, which of course can be substantial in content and volume.[51] This is to say there is an industry surrounding the capture of good ideas on strategy in the business world and a huge market for the products. In the military, an officer may have a good idea, paper, article or thesis but the industry surrounding the capture is simply much smaller and the audiences can be smaller too. Classics like Sun Tzu are transferred to business but this applies to the rare few. More contemporarily you can find the founder of SEAL teams producing *The Rouge Warrior for Business*. In fact, often times there are hybrids where the military innovator "reaches out" (not "sells out") to the business world to market his military ideas. One classic hybrid for review herein is *Winning in Fast Time* by Colonel (retired) John Warden (discussed in Chapter 3 as a hybrid model). Nevertheless, I could find no work called "Clausewitz on Business" and have less hope of finding "Tukhachevskii's Ten Laws of the Red Army Jungle."

Whatever has caused the difference, isolating strategy method in the business world can be daunting. Dr. Henry Mintzberg likens surveying the subject to going on a safari in a jungle! As a professor of management at McDill University he has devoted his life to studying and classifying strategy as a subject. His first strategy work was his thesis from 1967 entitled, *The Science of Strategy Making*.[52] He has been prolific and some of his books represent classics in the field. *The Rise and Fall of Strategic Planning* (1994) was once on the Chief of Naval Operations reading list. This book surveys methods of strategic planning but ultimately critiques the very concept. In military circles today, we recognize this critique as saying we've failed to indentify the cognitive work that precedes planning. And the phrase strategic planning doesn't make it any

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breathing. They are missing something." But from these great point it does not follow that many companies indeed have profit focus. Discussion from Senge, *The Fifth Discipline: The Art and Practice of the Learning Organization*, 263.

[50] From "Aligning Strategy and Action" courseware, Stanford Center for Professional Development.

[51] Bob De Wit and Ron Meyer, *Strategy--Process, Content, Context: An International Perspective*, 3rd ed. (London: Thomson, 2004). This book is a voluminous survey of business strategy from an international perspective.

[52] Mintzberg, *Tracking Strategies: Toward a General Theory*, 319.

easier to understand the distinction! Further in this work he concludes, "planning is about analysis, strategy is about synthesis. And analysis cannot produce synthesis."[53]

His next milestone was a textbook on business strategy, *The Strategy Process: Concepts, Contexts, Cases* (1988, 4th ed. 2002). Among several other concepts, Mintzberg describes the importance of seeing strategy as 'crafting' versus 'planning.'[54] His next two key works focus on strategy formation. The first is an exploration of the various schools of thought called *Strategy Safari* (1998, 2nd ed., 2009[55]). The second is his general theory of strategy formation in Chapter 12 of *Tracking Strategies*.[56] Dr. Mintzberg's work is one clear inroad into the business world's handling of strategy as a subject.

His main effort resulted in a typology of ten different schools which continues in common usage of business strategy summaries. These ten schools vary along thirteen criteria ranging from who should do strategy to the key message of each school. For overview, these are the ten schools with a brief description.[57]

1. The design school. Strategy is the result of senior managers using conscious rational analysis to design a fit between organizational strengths and weaknesses and environmental opportunities and threats. Also known as the Harvard school of thought. Key works include Philip Selznick's *Leadership in Administration* (1957) and Alfred D. Chandler's *Strategy and Structure* (1962).
2. The planning school. This reflects the design school view, but strategy here is decomposable into distinct steps and supporting frameworks like the Value Chain or the 5 Forces of Industry. Key works include Igor Ansoff's *Corporate Strategy* (1965).
3. The positioning school. Views strategy as selection from generic options or frameworks (e.g., the Generic Strategy Matrix) based on the formalized analysis of the specific industry and market situation. The key work is Michael Porter's *Competitive Strategy* (1980). Note: many authors compared this school directly with military thought due to the focus on analyzing the competition.
4. The entrepreneurial school. Focuses on the environment's influence in steering firms toward strategic options. Senior managers are seen here to have far less agency and control over strategic decisions. The key work is Schumpeter, J. A. *The Creative Response in Economic History*.

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[53] Ibid., 375.
[54] Henry Mintzberg, *The Strategy Process: Concepts, Contexts, Cases*, 4th ed. (Upper Saddle River, NJ: Prentice Hall, 2003), 101.
[55] Angwin, *The Strategy Pathfinder*, xv.
[56] Mintzberg, *Tracking Strategies: Toward a General Theory*, 333.
[57] Mintzberg, Ahlstrand, and Lampel, *Strategy Safari: The Complete Guide through the Wilds of Strategic Management*, 5. These descriptions are adapted from Mintzberg via Angwin, *The Strategy Pathfinder*, xv-xvi.

5. The cognitive school. Concerned with understanding the mental processes or psychology of the strategist that lead to particular strategic decisions. Herbert Simon's work *Administrative Behavior* (1947) is fundamental to this school.
6. The learning school. Views the strategy development process as emerging incrementally over time through trial, error, and learning from environmental shifts and questioning present assumptions. Key works include C.E. Lindblom's essay "The Science of Muddling Through" (1959), his book *The Policy Making Process* (1968) and Cyert and March's foundational *A Behavioral Theory of the Firm* (1963).
7. The power school. Strategizing is influenced by politics and focuses on bargaining, persuasion, and confrontation between various interested parties and the power dynamics that exist between a firm and its strategic partners and other networks. Graham Allison's *Essence of Decision* (1971) and W.G. Astley's essay, "Toward an Appreciation of Collective Strategy" (1984).
8. The cultural school. Concentrates on the influence of pre-existing organizational and/ or regional culture and common belief systems in promoting particular strategic choices. Key works are by Fhenman and Normann spread across the 1960s.
9. The environmental school. represents a move away from precise designs or plans, toward looser notions such as "visions" and "perspectives," typically articulated by the CEO or Senior Management. The foundational work is by Hannan and Freeman titled "The Population Ecology of Organizations" (1977).
10. The configuration school. Organizations are coherent but time-varying clusters of resources, characteristics, and behavioral strategy involves defining a desired end state (configuration) and mapping a series of steps to get there. "Configuration" draws upon many of the other strategy schools. Key works include A.D. Chandler's *Strategy and Structure: Chapters in the History of the Industrial Enterprize* (1962) and writings of the 'McGill Group' led by Mintzberg.

Within these ten schools, the first three provide processes for strategy development. Each of the first three builds upon the other in some way. The design school "presented the basic framework on which the other two were built." The planning school formalized the systematic process. Then the positioning school turned the focus of strategy to content versus process. [58]

First is *the design school,* otherwise knows as the Harvard school. The basic idea of the design school is, "strategy formation is a process of conception—the use of a few basic ideas to design strategy."[59] This conception is anchored to the famous concept of SWOT (internal **s**trengths/**w**eaknesses and external **o**pportunities/ **t**hreats). This

[58] Mintzberg, Ahlstrand, and Lampel, *Strategy Safari: The Complete Guide through the Wilds of Strategic Management*, 5.
[59] Mintzberg, *The Rise and Fall of Strategic Planning: Reconceiving Roles for Planning, Plans, Planners*, 36.

assessment of internal and external factors leads to a strategy that "fits" the realities of these four considerations. The origins go back to a 1957 work by Philip Selznick called *Leadership in Administration* which was then refined by Harvard business faculty starting in the 1960s. [60]

The stages of this method begin with external and internal appraisal. External appraisal results in a description of threats and opportunities in the environment. Internal appraisal results in a description of strengths and weaknesses of the organization. The external considerations are surveyed for key factors to success: success is the constant aim. Internal considerations aim to identify distinctive competencies.

From here a strategy that "fits" is formulated. This is done so "outside opportunities are exploited by inside strengths, while threats are avoided and weaknesses circumvented."[61] Choices among potential strategies are then weeded out based on 1) the values of leadership and 2) ethical norms of the society. From there a strategy is chosen and moved to planning for implementation and action.[62]

The implementation (I-Plan) and action plan stages (A-Plan) are captured in the Harvard Business Essentials on strategy. The focus of I-Plans is alignment. The guidance for this stage is reminiscent of COA development and analysis in the military. The A-Plans go down to the unit level and direct action with a plan that is reminiscent of COA comparisons and selection to operationalize a strategy.[63]

Those who elaborated on this design model also came to seven additional conclusions about the process.[64]

1. Strategy formation should be a controlled, conscious process of thought
2. Responsibility for the process must rest with the chief executive officer: that person is THE strategist.
3. The model of strategy formation must be kept simple and informal.
4. Strategies should be unique: the best ones result from a process of creative design.
5. Strategies must come out of the design process fully developed.

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[60] Ibid.
[61] Ibid.
[62] David A. Aaker, *Developing Business Strategies*, 6th ed. (New York: J. Wiley, 2001), 288-302.
[63] Harvard Business School., *Harvard Business Essentials: Strategy--Create and Implement the Best Strategy for Your Business*, Harvard Business Essentials (Boston, Mass.: Harvard Business School Press, 2005), 62-93.
[64] Mintzberg, Ahlstrand, and Lampel, *Strategy Safari: The Complete Guide through the Wilds of Strategic Management*, 30-33.

6. The strategies should be made explicit and, if possible, articulated, which means they have to be kept simple.
7. Finally, only after these unique, full-blown, explicit, and simple strategies are fully formulated can they then be implemented.

A second model summarized by Mintzberg is *the planning school*. The foundational writer is H. Igor Ansoff in 1965.[65] One basic contribution of the planning school is "gap analysis." This is "the difference between the current position of the firm and the objectives."[66] The military design school would call this the difference between the observed system and the desired system (discussed in chapter 3). The stage diagrams of the planning models can be complex but Mintzberg broke the basic stages down as follows.[67]

1. Internal audit
2. External audit
3. Develop a system of objectives
4. External appraisal
5. Strategy evaluation
6. Alternative portfolios
7. Strategy Operationalization
8. Schedule the strategy

The third example--positioning school--grew up around Michael Porter's *Competitive Strategy* (1980). This school is often seen to have much in common with military strategy due to the focus on conflict and competition.[68] There are five basic forces to analyze in the positioning school.[69]

1. Threat of new players
2. Threat of substitutes [to our products]
3. Bargaining power of suppliers
4. Bargaining power of buyers
5. Intensity of rivalry

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[65] H. Igor Ansoff, *Corporate Strategy; an Analytic Approach to Business Policy for Growth and Expansion* (New York,: McGraw-Hill, 1965).
[66] Mintzberg, *The Rise and Fall of Strategic Planning: Reconceiving Roles for Planning, Plans, Planners*, 44.
[67] Ibid., 43-62.
[68] Mintzberg, Ahlstrand, and Lampel, *Strategy Safari: The Complete Guide through the Wilds of Strategic Management*, 95.
[69] Ibid., 105.

Once this analysis is made, there are only three choices to make.

1. Cost leadership
2. [Product/service] Differentiation
3. Focus [narrow market segments; specialize]

Like the military design movement, Porter's work is focused on the top half of the strategy-planning process with an emphasis on the conceptualization portion. He does get down to the level of detailed 'competitive moves,'[70] which resembles the economic concept of 'strategic moves' taking place at the overall stage of crafting strategic elements of a strategy (See Chapter 4).

There are two additional models that met the inclusion criteria. First is business model generation. As the title implies, these models pertain to organizational transformation. This model could be particularly useful to peacetime AO work and potentially organizational development strategies for institutions during reconstruction and stability operations.

Also, US military organizations inherently demand—for better or for worse—constant transformation. Military organizations are subject to the combined gales of new administration cycles, global megatrends, revolutionary technologies, and 100% financial dependence on others and the whims that accompany this dependence (Congress). As such, US military organizations endure massive amounts of cumulative organizational transformation. Interestingly, our normal strategy development models (Chapter 3) are not designed for this kind of strategy work at all even though it may pertain very directly to our ability to structure and wage wars.

One very thorough example comes from a book with over 470 authors called *Business Model Generation*.[71] This work is devoted to capturing a clear method for inventing or re-inventing a business. As such, it provides a useful guide for anyone working on organizational transformation plans.

1. Canvas
    a. Customer segments

[70] Porter, *Competitive Strategy: Techniques for Analyzing Industries and Competitors With a New Introduction*, 88-106.
[71] Alexander Osterwalder, Yves Pigneur, and Tim Clark, *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers* (Hoboken, NJ: Wiley, 2010).

    b. Value propositions
    c. Channels
    d. Customer relationships
    e. Revenue streams
    f. Key resources
    g. Key activities
    h. Key partnerships
    i. Cost structure
2. Patterns
    a. Bundling and unbundling (patterns)
    b. Models
3. Design
    a. Insights
    b. Ideation
    c. Visual thinking
    d. Prototyping
    e. Storytelling
    f. Scenarios
4. Strategy
    a. Environment
    b. Evaluating business models
    c. Managing multiple business models
5. Process
    a. Mobilize
    b. Understand
    c. Design (again at this level)
    d. Implement
    e. Manage
6. Outlook

Johnson, Christensen and Kagermann add some meta-questions to begin this process. First, articulate what makes your existing model successful. Second, watch for signals that the model needs changing. Third, decide first if re-invention is worth it (more mediation on the ends). The answer is 'yes' "only if the new model changes the industry or market."[72]

The other additional model is presented in a comprehensive work on the international perspective called *Strategy: Process, Content and Context*. This book is as

[72] Havard Business Review Press, *On Strategy: HBR's 10 Must Reads* (Boston: Harvard Business School Publishing Corporation, 2011), 105-06.

broad as it is deep in all 940 pages! Within this work the authors lay out an overarching strategy-formulation model.[73]

1. Identifying
    a. Mission setting
    b. Agenda setting
2. Diagnosing
    a. External Assessment
    b. Internal Assessment
3. Conceiving
    a. Option Generation
    b. Option Selection
4. Realizing
    a. Action taking
    b. Performance control

The book is so comprehensive that there may be other concepts that would fill out the chapter 4 synthesis. But at the 'genus' level of analysis, this is the express model that is presented in this work.

ARCHITECTURE AND DESIGN FIELDS

Architecture may be the most salient design profession. Brian Lawson expands the process of design to those who work in three-dimensional or environmental design such as architecture, interior design, product and industrial design, urban and landscape design.[74] There are three models that can be compared to the other purposeful activity models in this thesis.

First, Karl Aspelund authored, "The Design Process." His thesis is that, "designing, regardless of what is being designed, has a clearly definable process."[75] He breaks this process down into seven stages.

1. Inspiration
2. Identification
3. Conceptualization
4. Exploration/Refinement
5. Definition/Modeling
6. Communication

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[73] De Wit and Meyer, *Strategy--Process, Content, Context: An International Perspective*, 106.
[74] Bryan Lawson, *How Designers Think: The Design Process Demystified*, Completely rev. 3rd ed. (Oxford ; Boston: Architectural Press, 1997), 4.
[75] Karl Aspelund, *The Design Process*, 2nd ed. (New York, NY: Fairchild Books, 2010), xiii.

7. Production

A second model can be drawn from a classic called *The Design of Everyday Things* by Donald Norman. Originally published as *The Psychology of Everyday Things*, the thesis of this book points out that we get what we design. "When you have trouble with things… don't blame yourself: blame the designer… it's the fault of the design."[76] Norman also articulates the criticality of conceptual models. They can, and must, promote deeper understanding. "When we lack understanding, we are apt to err."[77] This seems like a truism but his work explores what it truly means to *understand* something before you design. The acronym for this model is DOET for the title of the work. There are seven basic stages which form "an approximate model, not a complete psychological theory."[78]

1. Forming the goal
2. Forming the intention
3. Specifying an action
4. Executing the action
5. Perceiving the state of the world
6. Interpreting the state of the world
7. Evaluating the outcome

Another classic model is mentioned in Bryan Lawson's *How Designers Think*. He calls this a first map to examine the design process. This map is found in the RIBA Architectural Practice and Management Handbook (1965) and is simply called the RIBA "plan of work" model.[79] He warns us, as do others, that these activities do not necessarily happen serially.

1. Inception
2. Feasibility
3. Outline proposals
4. Scheme design
5. Detail design
6. Production information
7. Bills of qualities
8. Tender action

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[76] Donald A. Norman, *The Design of Everyday Things*, 1st Basic paperback. ed. (New York: Basic Books, 2002), x.
[77] Ibid., xi.
[78] Ibid., 48.
[79] Bryan Lawson, *How Designers Think: The Design Process Demystified*, Completely rev. 4th ed. (Oxford; Boston: Architectural Press, 2006), 33-36.

9. Project planning
10. Operations on site
11. Completion
12. Feedback

In this searching work by Lawson, he too ends his work with a model of design. Surprisingly, he notes that even up to 1980 there was very little empirical research on the design method. A corollary of Lawson's book is the sheer diversity of design applications and meanings. This makes it even more difficult to come up with a model for design. Nevertheless, using all of the aspects from the various works presented in this book he creates a synthesis with the following stages.

1. Formulating
    a. Ways of understanding design problems
    b. Identifying (name elements in the design situation)
    c. Framing (different points of view on a problem)
2. Representing
    a. Ways of representing design situation
    b. Conversations with representations
    c. Working with multiple representations
3. Moving
    a. Creating solution ideas
    b. Primary generators
    c. Interpretive and developmental moves
4. Bringing problems and solutions together
    a. Problem and solution are inseparable
    b. No clear order of appearance
    c. Briefing is a continuous process
    d. Parallel lines of thought
5. Evaluating
    a. Objective and subjective evaluations
    b. Suspending judgment
6. Reflecting
    a. Reflection in action
    b. Reflection on action
    c. Guiding principles
    d. Collecting precedent or references

In closing on design fields, there is another fascinating work in this field called *A Pattern Language*. As Tom Hughes at SAASS has described, the transfer value and change proposition has "timeless and timely" elements of strategy. *A Pattern Language* is a capture of numerous, timeless fundamentals for making towns and buildings. The

fundamentals are patterns that describe, "a problem which occurs over and over again in our environment, and then describes the core of the solution to that problem, in such a way that you can use this solution a million times over, without ever doing it the same way twice."[80] These problem patterns and tensions remind a reader of what the classic strategic concepts like Thucydides' triad are to military strategy.

Another such book, *Universal Principles of Design,* contains 125 design principles that illustrate the range of design attributes at our creative disposal.[81] In an abstract way, these two books could be viewed as compendiums of design concepts the way Sun Tzu and other military classics are compendiums of military strategy concepts. These concepts become the content of the creative process to be transferred when developing a theory of action (discussed further in Chapter 5).

ECONOMICS

Many of our basic terms in strategy are borrowed from economics. We often think of risk, reward, and cost in economic terms. Concepts like sunk costs, avoidable costs, marginal and diminishing returns, free-riders, externalities, etc. are all terms we inherit from economics. The economics phrase 'cost benefit analysis' is part of our daily parlance. In addition to such concepts, rational-actor calculation took on a life of its own, sprouting from economics in the form of game theory.

Game theory originated in applied math and economics. Economists Avinash Dixit and Barry Nalebuff refer to game theory as "an emerging science of strategy."[82] Antoine Bousquet provides a concise intellectual history of game theory.

> "Founded by John von Neumann and Oskar Morgenstern with the 1944 publication of their Theory of Games and Economic Behavior, game theory seeks to capture mathematically the strategic interaction of actors in situations where the actions of each actor impact the outcome of the "game" for the other participants. Applied to a broad range of areas of enquiry in the social sciences, in particular economics, game theory was employed in the Cold War to model the nuclear face-off and determine the likely outcome of specific policies of deterrence on the behavior of the participants. As the economist and nuclear strategist Thomas Schelling made clear, the theory "is based on the assumption that the participants coolly and 'rationally' calculate their

[80] Christopher Alexander, Sara Ishikawa, and Murray Silverstein, *A Pattern Language: Towns, Buildings, Construction* (New York: Oxford University Press, 1977), x.
[81] William Lidwell, Kritina Holden, and Jill Butler, *Universal Principles of Design* (Gloucester, Mass.: Rockport, 2003).
[82] Avinash K. Dixit and Barry Nalebuff, *The Art of Strategy: A Game Theorist's Guide to Success in Business & Life*, 1st ed. (New York: W.W. Norton & Company, 2008), x.

> advantages according to a consistent value system" which allows for the modeling of games according to the rules of logic.[83]

He goes on to explain how a great deal of our wargaming is in part premised on the logic of game theory.

Herbert Simon traces the history back to the 19th century and Augustin Cournot. In the same way that Clausewitz, Beaufre, Gray, Dolman, and Heuser emphasize the two-will aspect of strategy, Cournot "undertook to construct a theory of rational choice in markets involving two firms."[84] With two wills involved, games become unstable as in the classic Prisoners' Dilemma. Each player gains some with cooperation but they gain more with aggression unless both choose aggression. Thus, "the mutually beneficial strategy is unstable."[85] Along these lines Dixit and Nalebuff state, "the key lesson of game theory is to put yourself in the other player's shoes"[86] and "the essence of a game of strategy is the interdependence of the players' decisions."[87]

Actions taken by players in games are called 'strategic moves.' Thomas Schelling defined a strategic move as "one that influences the other person's choice in a manner favorable to one's self, by affecting the other person's expectations on how one's self will behave."[88] Dixit and Nalebuff first define this as a move, "designed to alter the beliefs and actions of others in a direction favorable to yourself."[89] Later they refine this definition to, "actions that change the game to ensure a better outcome for the player taking the actions."[90]

Game theory is more about strategic content than process. Thus, it is harder to find a commonly accepted strategy development model in economics. One such model comes from *Economics of Strategy*. This group of authors has a didactic framework that bears resemblance to the purposeful activity methods of the other professions and will serves as my economic framework within which game theory could exist.

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[83] Antoine J. Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity*, Critical War Studies (New York: Columbia University Press, 2009), 144.
[84] Simon, *The Sciences of the Artificial*, 37.
[85] Ibid.
[86] Dixit and Nalebuff, *The Art of Strategy: A Game Theorist's Guide to Success in Business & Life*, 5.
[87] Ibid., 33.
[88] Schelling, *The Strategy of Conflict*, 160.
[89] Avinash K. Dixit and Barry Nalebuff, *Thinking Strategically: The Competitive Edge in Business, Politics, and Everyday Life*, 1st ed. (New York: Norton, 1991), 120.
[90] Dixit and Nalebuff, *The Art of Strategy: A Game Theorist's Guide to Success in Business & Life*, 175.

To formulate and implement a successful strategy, what does the firm have to pay attention to? To answer this question they present a general "framework of strategy" with sub-categories which I examine here to isolate stages in their approach.[91]

Under their conceptual analysis section I add games and strategic moves. Games can be used more than one way in strategy but one application is to discover the theoretical basis for the strategic moves. As such, various game scenarios can form an implied theory of action upon which the moves are based. The moves themselves are most like the strategic elements that comprise the themes to be carried out based on the theory of games. This results in a fused framework as follows.

1. Boundaries of the firm - What the firm should do, how large should it be, and what businesses it should be in. In this subject, Dixit and Nalebuff call "Rule 1: look forward and reason backward."
2. Market and competitive analysis.
    a. Environment - The nature of the markets in which the firm competes and the nature of competitive interactions between firms in those markets.
    b. [Games] – theories upon which a strategy is based.
    c. [Strategic moves] – themes and actions to implement the game theory.
3. Position - How the firm should position itself to compete or, what should be the basis of its competitive advantage.
4. Dynamics - How to adjust over time.
5. Internal organization - How the firm should organize its structure and systems internally.

In conclusion, engineering, business, designers and economics methods are just a sampling of purposeful activity models. Again, these models range from profession-based purposeful activity, express strategy development, and de facto strategy development methods. The commonality with military methods will be pulled together in Chapter 4. But first, in chapter 3 we turn to purposeful activity models where strategy itself began.

[91] David Besanko, *Economics of Strategy*, 5th ed. (Hoboken, NJ: John Wiley & Sons, 2010); Press, *On Strategy: Hbr's 10 Must Reads*.

Chapter 3

Military and Hybrid Methods

For my personal duty was… like the master architect… [where I found] Nine-tenths of tactics were certain enough to be teachable in schools; but the irrational tenth was like the kingfisher flashing across the pool, and in it lay the test of generals. It could be ensued only by instinct… until at the crisis it came naturally, a reflex.

T.E. Lawrence

Strategy methods in the US military remain in surprising flux for a subject that has been studied for well over 2,000 years. This chapter explores the current range of government and hybrid strategy development models to provide a synthesis to determine where (process-wise) strategic creativity in ways is central in our methods. The following models will be analyzed for the Chapter 4 synthesis.

1. Military Decision Making Process (MDMP) (source: FM 101-5).
2. Joint Operational Planning Process (JOPP) (source: JP 5-0).
3. Military Design (source: FM 5-0).
4. (ARCENT) Design (source: ARCENT).
5. Strategy-to-Task (strat-to-task) (source: AFOTTP 2-1.1).
6. Prometheus (source: Warden).
7. Harry Yarger models (source: Yarger).
8. Operational Net Assessment (source: Bracken).
9. Elements of Strategic Thinking (source: Kennedy).

Military Decision Making Process

MDMP is the basic decision making method in military doctrine. Originating in the Army, MDMP is drilled frequently during US Army wargames and exercises as a core planning skill. Historically, it comes from a rich tradition.

> The MDMP reflects almost 100 years of institutional learning and experience of the U.S. Army. The current process is an updated version of an analytical decision-making model originally adopted in 1960, which traces its origins to the Estimate of the Situation process – Army doctrine since 1910. This original Estimate process borrowed heavily from late 19th/early 20th Century Prussian General Staff's processes, which the Prussians developed in order to systematize military thought, and to deal with the complexities of modern warfare...[1]

The MDMP can be classified as a 'science-based' problem solving method with a

[1] John J. Marr, "The Military Decision Making Process: Making Better Decisions Versus Making Decsions Better" (Monograph, School of Advanced Military Studies, 2001), 11.

distinguished and layered history. The basic steps of MDMP are:[2]

[2] FM 101-5. Staff Organization and Operations, 31 may 1997, 5-2 thru 5-27.

Step 1. Receipt of Mission.

- Issue commander's initial guidance

Step 2. Mission Analysis (MA). MA

- MA Step 1. Analyze the higher headquarters' order.
- MA Step 2. Conduct initial intelligence preparation of the battlefield (IPB).
- MA Step 3. Determine specified, implied, and essential tasks.
- MA Step 4. Review available assets.
- MA Step 5. Determine constraints.
- MA Step 6. Identify critical facts and assumptions.
- MA Step 7. Conduct risk assessment.
- MA Step 8. Determine initial commander's critical information requirements (CCIR).
- MA Step 9. Determine the initial reconnaissance annex.
- MA Step 10. Plan use of available time.
- MA Step 11. Write the restated mission.
- MA Step 12. Conduct a mission analysis briefing
- MA Step 13. Approve the restated mission.
- MA Step 14. Develop the initial commander's intent.
- MA Step 15. Issue the commander's guidance.
- MA Step 16. Issue a warning order.
- MA Step 17. Review facts and assumptions.

Step 3. Course of Action Development (COA-D). COA-D

- COA-D Step 1. Analyze relative combat power.
- COA-D Step 2. Generate options.
- COA-D Step 3. Array initial forces.
- COA-D Step 4. Develop the scheme of maneuver.
- COA-D Step 5. Assign headquarters.
- COA-D Step 6. Prepare COA statements and sketches.
    - Suitability
    - Feasibility
    - Acceptability
    - Distinguishability
    - Completeness

Step 4. Course of Action Analysis (i.e. War Gaming)

- Gather the tools.
- List all friendly forces.
- List assumptions.
- List known critical events and decision points.
- Determine evaluation criteria.
- Select the war-game method.
- Select a method to record and display results.
- War-game the battle and assess the results.

Step 5. Course of Action Comparison.

Step 6. Course of Action Approval.

- Approve COA
- Refine commander's intent
- Specify type of rehearsal
- Specify type of order

Step 7. Orders Production.

- Approve order

Step 8. Rehearsal[3]
Step 9. Execution

Joint Operational Planning Process

The Joint Operational Planning Process (JOPP) follows a similar pattern to MDMP. JOPP resides in the highest level of DoD doctrine called 'Joint Publications' or 'JPs' managed by the Chairman of the Joint Chief's of Staff J7 Directorate.[4] Like MDMP, JOPP fits into the science-based problem solving models. As such, JOPP is a "logical process that commanders and planners can apply at any level."[5]

The seven basic steps of JOPP mirror the MDMP. Two additional steps precede these seven but they are found in general discussion. Each represents cognitive steps before planning. First, there is no higher national end than one given by the President. Here at level 1 strategy, any direction from the President is considered to be a 'national strategy end state' which leads to a 'strategic military objective.'[6] With the end there is also supposed to be an end state with termination criteria.[7] Second, such an objective will trigger detailed study called the joint intelligence preparation of the operational environment (JIPOE). This study of the situation will proceed into the seven stages of planning.

Step 1: Initiation
Step 2: Mission Analysis
Step 3: Course of Action (COA) Development
Step 4: COA Analysis and Wargaming
Step 5: COA Comparison
Step 6: COA Approval
Step 7: Plan or Order Development

In addition to these steps the JOPP emphasizes a systems approach and effects-based thinking. Effects are "a way to clarify the relationship between objectives and tasks and help the Joint Force Commander (JFC) and staff determine conditions for achieving objectives… desired effects are the *conditions* related to achieving

[3] Rehearsal and execution are not a part of the normal seven steps in MDMP. But they are added for two reasons. First, the concept of rehearsal is culturally central to Army conceptualization of a complete planning process. Second, rehearsal and execution are added in the figure 5-1 conceptualization of MDMP.
[4] JP 5-0. Joint Operation Planning. 26 December 2006.
[5] JP 5-0. Joint Operation Planning. 26 December 2006, III-2.
[6] JP 5-0. Joint Operation Planning. 26 December 2006, III-5.
[7] JP 5-0. Joint Operation Planning. 26 December 2006, III-8.

objectives."[8] This section of the doctrine also emphasizes the open-ended and dynamic nature of systems so that planning should not be viewed as 'systems engineering.'

Doctrine insists that JOPP and the next subject 'design,' are not separate processes. Doctrine also insists that operational art bounds the whole process (see Chapter 5). But no work made clear how these three fit together in practice until Jeff Reilly's *Operational Design*.[9] Reilly clarifies that operational design provides the structure for the creative integration of operational art. He also characterizes how design and art occur all along the JOPP process.

Military Design

Operational Design is the current military movement with the greatest inertia. In pursuit of a successful method to find the winning ideas before military planning, General Mattis first ensured focus stopped on effects-based operations (EBO)[10]. He viewed EBO as mechanistic and sensible in closed systems but over-simplified for operations in open systems like Iraq. One year later General Mattis said the answer is what was once called systemic operational design, then operational design and now simply, "design."[11]

Design has generated a well-spring of Army, Marine, and Navy literature (in that order of volume) for many years, but spiking since 2006 in the US. But in terms of what 'it' is, the literature of this paradigm appears to be elusive and sometimes divided. While General Mattis well stated "there is nothing new here,"[12] hundreds of US field grade officers have stepped up to the professional military education line throwing their monographs without a bull's-eye. The *JFCOM Design Handbook* draft was sent to General Mattis in 2009. Unsatisfied, he sent it back for re-working.[13] In 2010, an excellent Army Central Command (ARCENT) lessons learned paper began by noting, "Design still has significant gaps."[14] Most recently, a brilliant student guide called *The*

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[8] JP 5-0. Joint Operation Planning. 26 December 2006, III-12-14.
[9] Jeff Reilly, "Operational Design: Shaping Decision Analysis through Cognitive Vision."
[10] Mattis. General. 2008. 14 Aug 08 Memo to Joint Forces Command.
[11] Mattis, General. 2009. 6 Oct 09 Memo on Vision for a Joint Approach to Operational Design.
[12] Mattis, General. 2009. 6 Oct 09 Memo on Vision for a Joint Approach to Operational Design.
[13] This document is not published. Center, "Design in Military Operations: A Primer for Joint Warfighters."
[14] Trent Mills, "Applying Design at Us Army Central/Third Army: What Theory Recommends and What Reality Demands," 1.

Art of Design 2.0 came out of Ft. Leavenworth[15] but a student of their program recently explained 'we still look to FM 5-0 for our primary guidance.'

As a discourse-in-development there are naturally camps, schools, and divisions common to Kuhn's phase of paradigm shifting. Highlighting some tensions is not to breed them but to understand how design currently sits in our strategic culture. One group believes the discourse is light on theory and thus created a new work philosophy on design.[16] Another respects the philosophy of design but realizes how groups staring with real-world security dilemmas need a practitioner's guide.[17] One group believes design and planning are related but different subjects.[18] Another cautions about pathologies that develop from separating the two or taking the distinction to an extreme.[19]

The macro take away from military design is to determine the correct problem first before further strategizing. As simplified by Alex Ryan of The School of Advanced Military Studies (SAMS), in design "defining the problem is the problem."[20] This harkens back to Drew and Snow's emphasis on, "doing the right job" versus simply "doing a job right" (chapter 1). To do so, FM 5-0 lays out a few basic stages that correspond to, "the conceptual component represented by the cognitive application of design."[21]

1. Environment framing - what is the context in which design will be applied?[22]
2. Problem framing - what problem is the design intended to solve?[23]
3. Developing an operational approach - what broad, general approach will solve the problem?[24]
4. Guidance for further detailed planning[25]
    - Problem statement
    - Initial commander's intent

[15] Studies, "Art of Design: Student Version 2.0."
[16] Naveh Shimon, "The Structure of Operational Revolution: A Prolegomena." General Naveh is the originator and all other schools start from his work and depart from there.
[17] For example, see Trent Mills, "Applying Design at Us Army Central/Third Army: What Theory Recommends and What Reality Demands." Mills is holistic about philosophy, design and planning but comes out seeing the need to make design more real to practitioners.
[18] Mattis, General. 2009. 6 Oct 09 Memo on Vision for a Joint Approach to Operational Design.
[19] Wayne Grigsby, "Integrated Planning: The Operations Process, Design, and the Military Decision Making Process."
[20] Alex Ryan. Personal conversation. 30 April 2011.
[21] FM 5-0. The Operations Process. 26 March 2010, 3-1.
[22] Ibid., 3-8.
[23] Ibid., 3-10.
[24] Ibid., 3-11.
[25] Ibid., 3-12.

- Commander's initial planning guidance
- Mission narrative
- Other products created during design (e.g. rich pictures)

5. Ready to reframe[26]

ARCENT Lessons Learned on Design

In 2008, an ARCENT design team was mentored by Brigadier Generals (retired) Wass de Czege (USA) and Naveh (IDF). This team drafted lessons that I consider a unique application of design that could be referred to as the 'Third Army Approach.' Their approach resulted in further articulation of two key elements in the environment frame: the role of meta-questioning and key clarifications of both 'theories of action' and 'stratagems.'

In the environment frame this team described the observed system and the desired system (in the synthesis tables these will be called the OS and DS). The OS is "a term of reference for our systemic understanding of the state of affairs as we understand them." The DS is defined as, " an emerging understanding of the state of affairs as they should be to support US interests as expressed in strategic directives and harmonized with the learning achieved in the development of the OS."[27] The OS comes very close to the upcoming Prometheus description of the 'future picture' (Warden, 2002).

This team was the most articulate about developing a theory of action that precedes the operational approach. This is a very key stage at which design can incorporate creativity at the most theoretical level. They describe the theory of action as, "a re-envisioning of the [DS] propositions as a way of describing the form of the intervention." This theory of action should result in 'stratagems' which they define as ideas that enable the transformation proposed in the theory of action. These are taken to be similar to, or synonymous with, the 'strategic elements' described in the synthesis (c.f. Chapter 1).

Strat to Task Model

Strategies-to-tasks or "Strat-to-Task" is a means-to-ends method popularized in the air component. It grew as a community of practice concept to translate higher-level

[26] Ibid., 3-12, 13.
[27] Mills, "Applying Design at Us Army Central/Third Army: What Theory Recommends and What Reality Demands," 8. The OS and DS are also captured in the new JFCOM Handbook, "Pamphlet 10."

strategy into air tasks. In Air Operations Center doctrine[28] and Air Force Operational Tactics, Techniques, and Procedures these stages are (with levels added for framework):

1. Strategic objectives (level 2 strategy)
    a. SECDEF overall end state
    b. Defined measure of success
2. JFC campaign planning (level 3 strategy)
    a. JFC guidance
    b. Strategy
    c. JFC objectives and phasing
    d. Desired military end states
    e. Defined measure of success
3. Joint Air and Space Operations Plan (level 4 strategy)
    a. Air strategy
    b. Operational air objectives
    c. Phasing
    d. Air tasks
    e. Success indicators
    f. End states
4. Tactical objectives (level 5 strategy)
    a. Success indicators
5. Tactical tasks (tactical level of war)
    a. Daily air tasking order
    b. Force application plan
    c. Target set to support air tasks
    d. Battlespace awareness air and space
    e. Control and logistics plans

As the name implies, the goal is to align all tactical actions to the strategy. In business, this would be the equivalent of corporate portfolios (strategic), programs within those portfolios (operational) and projects within each programs (tactical). This process gets so detailed that, "each target selected should be traceable back to the supported tactical task, tactical objective, and operational objective. Clear linkage of tasks to objectives is also vital to analyze the weight of effort and other operational calculations, while realizing that some targets will trace back to more than one task, some tasks to more than one objective, and so on."[29]

Strat-to-task is not inherently a strategy development method unless it also incorporates some theory of action. Otherwise, it is simply a very efficient planning model that fulfills the need to disaggregate higher-level objectives into lower level tasks.

[28] AFTTP 3-3.AOC. 1 November 2007, 4-14.
[29] AFOTTP 2-1.1, 9 August 2002, 5-12.

Strat-to-task without a theory of action is what business strategy may call a strategic alignment method like portfolio and project management discussed above.

Stages 2 and 3 in Strat-to-Task do carry generic strategic concepts to give meaning to the alignment functions. These generic strategies are inherited from Robert Pape's *Bombing to Win*. Pape, characterized four basic ways to use a bomb in coercion that range from threat to use of force.[30] *Risk* strategies raise the probability of an enemy suffering costs. *Denial* strategies reduce the probability that enemy resistance will yield benefits (thus, denial campaigns focus on the enemy's military strategy itself). *Punishment* strategies attempt to raise the cost of continued enemy resistance. *Decapitation* strategies combined punishment and denial by attacking a single target set.[31] These four generic strategies appear in Strat-to-Task doctrine as a sound bridging function of strategic concepts to lower level, detailed planning. [32]

Prometheus Model

The Prometheus Model is an express strategy development model and a very clear one at that. This model is a military-business hybrid created by Colonel (retired) John Warden and co-author Leland Russell. John Warden translated his military strategy concepts into a model for business. His military fame began during Operation Desert Storm where he led a strategy organization called Checkmate that developed a strategy for the war. He was tasked to brief the resulting plan called "Instant Thunder" to Generals Schwarzkopf and Powell (in that order) who approved the plan that eventually became the opening of Operation Desert Storm.

There are ten basic steps of the Prometheus Model that are summarized in four categories: design the future, target for success, campaign to win, finish with finesse.[33] These four categories lead a practitioner to ask four strategic questions. What future do we want to create? What system change is necessary for that future to become reality?

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[30] These are reminiscent of Porter's four strategies for competing in a business environment. Both sets of four are laid out as generic strategies that don't change but can be tailored to situations.
[31] Robert Anthony Pape, *Bombing to Win: Air Power and Coercion in War*, Cornell Studies in Security Affairs (Ithaca, N.Y.: Cornell University Press, 1996), 18-19.
[32] AFOTTP 2-1.1, 9 August 2002, 5-12. This AFOTTP document does not include Pape's fourth strategy of 'decapitation.'
[33] Warden and Russell, *Winning in Fasttime: Harness the Competitive Advantage of Prometheus in Business and Life*, 47.

Which leverage points in the system will move it in the desired direction? How will we know when we're finished, and what is the exit plan?[34] The ten basic stages follow.

1. Understanding/scoping the environment. There are five basic sub-steps in scoping the environment: determining the direction of change, time, disruptive innovations, revolutionary precision in applying resources and addressing assumptions.[35]
2. Building a future picture. In Prometheus, a future picture is not a goal or objective. Nor is it a solution to a problem in a narrow sense nor a vision per se which can be too vague (but 'vision' is the closest term). A future picture is much broader and arguably clearer. A future picture is what you want the world to look like when you are done.
3. Characterize key descriptors. This stage gets specific about strategic elements of a strategy he calls "key descriptors of system change." They are built around key strategic factors. Warden and Russell explain this is "a creative process enhanced by the right perspective" from previous stages.[36] They may start as questions but they become statements of concepts that are synthesized in a future picture statement.[37]
4. Engraving a guiding precept. A guiding precept is a core belief of the strategy that casts light on everything that is to be done. "It is a behavioral touchstone, a short statement about what is or what is not permissible behavior as people go about the work of achieving the Future Picture."[38] The overall US response to Pearl Harbor was captured in, "Europe first." The delicate balance of restoring security in Iraq during General Mattis' tenure was captured by his guiding precept, "No better friend. No worse enemy."
5. Developing measures of merit. In Prometheus, it is critical to measure results at this strategic level before campaigns, portfolios, or lines of operation are even developed. By measuring at the design level one can avoid assessment pitfalls like picking up on trailing indicators versus leading indicators; measuring means rather than ends; or getting lost in tactical variance rather than strategic significance. Measures of merit always refer back to the future picture directly as they are built on each key descriptor of systems change. "Measures of merit evaluate results against Future Picture objectives (the ends)."[39]
6. Mapping a systems strategy. Based on the understanding of all previous stages, map the key descriptors to the systems (largest one that can be managed down to subsystems). This is an intermediary step between key descriptors and conceptual lines of operations or campaigns. This is done practically by analyzing centers of gravity where campaigns have the most leverage.[40]
7. Determining the effects required. This stage involves being specific about how to connect the system centers of gravity to the key descriptors. There are six sub-

[34] Ibid., 6.
[35] Ibid., 51-62.
[36] Ibid., 69.
[37] Ibid., 68.
[38] Ibid., 79.
[39] Ibid., 93.
[40] Ibid., 114-26.

steps to matching the correct effects: defining the desired effect, clarifying the measure of merit (from previous stages), deciding on the time frame, gathering meaningful information, developing high-level directions for achieving the effects, and estimating the resource requirements.[41]

8. Building campaigns. Campaigns are the lines of operations to align the actions to the strategy. Campaigns are the forms resources are applied to the strategy.[42]
9. Organizing for success. Organizational structure adjustments may be required at a macro or micro level to implement the strategy. The authors use the example of Roman legions and road systems being the organization that enabled the Roman empires strategy. Thus they remind that, "Organizational structure is a choice, not a given."[43]
10. Defining exit criteria. In this model, one is forced to develop firm exit criteria in advance. "Without Exit Points, we inevitably find ourselves fighting desperate battles to save something that is no longer relevant."[44]

Other Hints Toward Strategy Development

There are several other military models of note that are not portrayed as major models for practitioners. Nevertheless, there are great insights about strategy development scattered throughout such works. I chose three here to broaden the ranger of considerations in government models.

Harry Yarger Models. First, although Harry Yarger does not lay his work out as a strategy method, he offers seven steps within the strategic appraisal process[45] and a key model for consideration.[46] His work is a very diverse discourse on strategy that should not be limited to this arrangement of stages. But in keeping with the overall analysis format, he offers these method considerations for practitioners.

1. Stimulus or requirement. Conduct a new strategic appraisal to respond to the stimulus requirement such as a major environmental change, new national policy, or requirement to update strategy.
2. Determine and articulate Interests. Interests are expressed as statements of desired end-states or conditions and do not imply intended actions or set objectives-policy and strategy does this.
3. Determine intensity of interests. Intensity is dependent on the context of the strategic situation and the policymaker or strategist's interpretation of the Context

[41] Ibid., 131-32. An example of stages 6 and 7 combined is found on page 133.
[42] Ibid., 141-51.
[43] Ibid., 152-53.
[44] Ibid., 170.
[45] Yarger, *Strategy and the National Security Professional: Strategic Thinking and Strategy Formulation in the 21st Century*, 153-56.
[46] Ibid., 80.

and the importance of the interest to national well-being. Range from survival, vital, important, and peripheral.
4. Assess Information. The strategist casts a wide net to bring together and assess the information relative to the interests.
5. Determine Strategic Factors. Strategic factors are the things that can potentially contribute or detract causally to the realization of the interest.
6. Select Key Factors. Key strategic factors are those strategic factors at the crux of strategic interaction, representing the potential critical points of tension between continuities and change within the environment. Per the model on page 80, these factors translate into ways, means and ends that produce new conditions or strategic effects.
7. Formulate Strategy. The strategist's assessment of how to best interact with the key strategic factors is reflected in his calculation of the relationship of ends, ways, and means-the rationally stated output of strategic thought.
    a. Suitable
    b. Feasible
    c. Acceptable

Net Assessment. Second, the Office of Net Assessment (ONA) serves as a strategic resource for the Secretary of Defense (OSD/NA). While they do not have a published strategy method per se, there is an excellent description of their strategic considerations that is worth noting. The office arose from the need to wade through vast amounts of strategic information and determine the strategic bottom line or 'net assessment.' It would be wrong to portray the following as the 'ONA method' but I found their stages interesting enough to report. Paul Bracken characterized six practices that form a framework of net assessment.[47]

1. Strategic interactions
2. Long time spans
3. Getting things right with a little thought
4. The importance of socio-bureaucratic behavior
5. Strategic asymmetries
6. The multifaceted nature of strategy

Teaching Strategy. A final source to relay comes from Robert Kennedy's essay in a collection on *Teaching Strategy: Challenge and Response* (2010). Strategic thinking, not method, is his context for the following points. He uses the following point to answer, "What then are those universal elements that constitute sound approach to

[47] Paul Bracken, "Net Assessment: A Practical Guide," *Parameters*, no. Spring 2006 (2006).

dealing with a problem?" Since these points are not presented as method, I don't include them in Chapter 4. But the resemblance to the synthesis is noteworthy so I include them here in discussion.[48]

1. Defining the situation.
2. Detailing your concerns and objectives, those of your principal antagonist(s)/competitor(s), and those of other important players.
    a. Thus the mind must be trained to wander beyond the confines of the existing issue and the immediate parties to the broader arena of issues among a wider range of parties and interests that might be affected.[49]
    b. Concerns of others… The absence of an understanding of such factors may have led to a profound strategic failure that culminated in the 2003 Iraq War.[50]
3. Identifying and analyzing options that might be pursued, in terms of such factors as costs, risks, and probabilities of success.
4. Options selection and alternatives analysis in the light of potential frictions.
5. Re-optimization in light of changing events.
6. Evaluation of the option in terms of its success in achieving desired results.
7. Option modification or replacement.[51]

The following synthesis of the strategy development methods found in Chapters 2 and 3 progresses in two stages. The starting point is to search for commonality among the purposeful activity models. Then, using those common stages, assess which ones are most critical for shaping creativity in ways. Thus, the focus of synthesizing common stages will be to ask, "through what stages can creativity in 'ways' most clearly alter the result of an intended strategy?"

[48] Gabriel Marcella, ed. *Teaching Strategy: Challenge and Response* (Carlisle, PA: Strategic Studies Institute, U.S. Army War College,2010), 25-40.
[49] Ibid., 27.
[50] Ibid., 32b.
[51] Ibid., 26.

Chapter 4

A Synthesis of Models

Truth is found neither in the thesis nor the antithesis, but in an emergent synthesis which reconciles the two.

Georg Wilhelm Friedrich Hegel

There is no one way to arrange a synthesis of twenty-one models from five plus professions. As such this is 'a' synthesis and by no means '*the*' synthesis. The purpose of this synthesis is to discover what can be learned about stages that offer maximum access to shaping ways in a strategy. To do this I have attempted to stay true to all of the authors' definitions and how they match with common functions of purposeful activity. The synthesis is organized by common functions among the models ranging from a beginning to reframing. The common functions I have selected inherit terminology from both the model and the theory background in Chapter 1. These are the common features of the stages I found by comparing the functions in each model.

1. Initiate a 'beginning.'
2. Master the context (theory of reality).
3. Create a future picture.
4. Tailor a theory of action.
5. Craft strategic elements.
6. Develop (strategic) measures of merit.
7. Formulate a comprehensive strategy.
8. Build campaigns.
9. Develop Lines of Effort or Operations (LOEs).[1]
10. Organize for success (theory of organization).
11. Delegate execution.
12. Campaign to win.
13. Learn and reframe (theory of learning).

When reading the charts horizontally, you see variations on the common features of each stage. When reading the charts vertically, you see how each model covers functions in the synthesis stages.

[1] Joint terminology in JP 5-0 may be overturning LLOO for the Army term 'Lines of Effort' or LOEs.

To derive these stages, I first pooled the models and searched for common functions which resulted in patterns. Then, I determined how features of each model paired with the common functions. From there I chose function names largely from features in the models themselves that best describe the whole population within a similar function (I borrow language where possible). Additionally, I paired General Wass de Czege's four kinds of theory that are involved in the process with the related functions in strategy development: theories of the situation, of the intervention, of the organization and of the learning system.[2] Based on his writings I adapt these to be a theory of reality, theory of action, theory of organization, and theory of learning.

Describing the General Stages

The beginnings. Strategizing across the professions has diverse starting points. In the military this may originate with either a crisis or proactive leadership. In engineering initiation is usually a set of project requirements but may also emanate from entrepreneurial or philanthropic research and development. The beginning may be expressed or implied; hopefully it is not tacit. For from the beginnings come the color and tenor of the future picture.

Mastering the Context. The first main stage is *mastering the situation* with penetrating understanding. This comes from deeply devoted study that leads to true understanding of the reality at hand. SAMS has called this gaining systemic understanding.[3] This results in a best possible theory of reality in the observed system. These are only perceptions—only models—that are hopefully as accurate as Heisenberg's uncertainty allows. Free from bias. Free from logical fallacies. For Boyd, when you combine Heisenberg's Uncertainty Principle, Gödel's Incompleteness Theorems, and the Second Law of Thermodynamics, we can never really know the 'observed system' so we do our best.[4] Creative strategies appear to theorize at this stage too; in this case building a theory of reality. Strategic concepts can add understanding at this level and even

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[2] Wass de Czege, "The Logic and Method of Collaborative Design," 7.
[3] Edward P. W. Hayward, "Planning Beyond Tactics: Towards a Military Application of the Philosophy of Design in the Formulation of Strategy." Monograph, School of Advanced Military Studies, U.S. Army Command and General Staff College, 2008,
[4] Grant Tedrick Hammond, *The Mind of War: John Boyd and American Security* (Washington: Smithsonian Institution Press, 2001), 119, 59.

transfer into the theory of action as with John Warden's Five Rings model and enemy-as-a-system concept.

Table 3: A Synthesis of Models (page 1)

MODEL	Hard systems engineering (Hall)	Soft systems engineering (Checkland)	Engineering method (Vincenti)	Simon	Business Design School	Business Planning School
Beginning		The problem situation unstructured	Requirements	Agenda setting		
Master the context (theory of reality)	System studies, problem definition	Rich pictures, analysis 1, 2, 3, CATOWE	Familiarization with the problem	Intelligence of both 'inner and outer'	SWOT	Internal & External audits
Create a future picture	Select objectives	Root definition of T in CATWOE		Representing the problem;		Develop a 'system of objectives'
Tailor a theory of action		Compare models to reality; look for poss changes	Identification of basic concepts & variables	Invent design		
Craft strategic elements of the overall strategy				Search for alternatives, evaluate, develop designs	Key success factors & distinctive competencies	
Develop strategic MOMs		Develop measures of performance	Development of measurements	Analyze design		External appraisal
Formulate complete strategy	System synthesis	Decide feasible, desired, changes	Growth of opinion	Represent the design problem (so solution is transparent)	Evaluate, choose strategy	Strategy evaluation
Build campaigns	System analysis, system selection	Actions to improve the problems	Research, measure, assess results		Implementation Plan (I-Plan)	Alternative portfolios
Develop Lines of effort or operations	Development planning (ongoing studies)				Action Plan (A-Plan)	Schedule the strategy
Organize for success (theory of organization)			Create & eval conceptual models (< MOMs)		Action Plan (A-Plan)	
Delegate the campaign		Take and control action				
Campaign to win	Current engineering					
Learn and reframe (theory of learning)		Whole process seen as a learning process		Review	Review stratagies	

Table 3: A Synthesis of Models (page 2)

MODEL	Business Position School	Business model generation	De Wit and Meyer (international)	Economic and game theory	Aspelund (architecture)	DOET (Norman)
Beginning		Meta-questions	Mission setting; agenda setting	Boundaries of the firm		
Master the context (theory of reality)	Detailed industry analysis		External, internal assessment	Environment	Inspiration	
Create a future picture		Canvas		[Boundaries of the firm and position combined]	Identification	Form the goal; form the intent
Tailor a theory of action	Generic theories and value chains	Patterns		Games	Concep-tualization	
Craft strategic elements of the overall strategy	Competitive moves	Design		Strategic moves	Concept-ualization	Specify action
Develop strategic MOMs						
Formulate complete strategy		Strategy		Position	Exploration and refinement	
Build campaigns		Process	Option generation	Dynamics	Definition and modeling	
Develop Lines of effort or operations		Process	Option generation		Communication	
Organize for success (theory of organization)			Performance control	Internal organization	Production	
Delegate the campaign			Action taking		Production	Execute the action
Campaign to win			Action taking		Production	Perceive & interpret the world
Learn and reframe (theory of learning)						Evaluate the outcome

Table 3: A Synthesis of Models (page 3)

MODEL	RIBA (architecture)	Lawson	MDMP	JOPP	Military Design	ARCENT Design Lessons
Beginning	Inception		Initiation	Initiation		
Master the context (theory of reality)	Feasibility	Formulation	Mission analysis and IPOE	Mission analysis and JIPOE	Environment framing (EF)	EF, develop the observed system (OS), logic of transformation
Create a future picture	Outline proposal	Representing			Problem framing (PF) [if led with FP in mind]	PF, the desired system (DS), meta-questioning
Tailor a theory of action	Scheme design					Theory of action, logics, tensions, potentials
Craft strategic elements of the overall strategy	Detail design	Moving			Operational approach [could contain a ToA]	Stratagems
Develop strategic MOMs					[Inverse] Reframing criteria	
Formulate complete strategy	Production and bills of quantity	Bring problem & solution together			Guidance for detailed planning	Design concept w/LOE. Guidance to planners
Build campaigns	Tender action	Evaluating	COA-D, COA-A, COA-C, COA-S	COA-D, COA-A, COA-C, COA-S		
Develop Lines of effort or operations	Project planning		Plan or order development	Plan or order development		Lines of effort link and synthesis from DC
Organize for success (theory of organization)			Plan or order development	Plan or order development		
Delegate the campaign						
Campaign to win	Operations on site	Reflecct IN action	Rehearsals and execution			
Learn and reframe (theory of learning)	Competition and feedback	Reflect ON action			Adjust design	

Table 3: A Synthesis of Models (page 4)

MODEL	Strat-to-task	Prometheus (Warden)	Yarger
Beginning	National strategic objectives		Stimulus or requirement
Master the context (theory of reality)		Understand the environment	Assess information (#4)
Create a future picture		Develop a future picture	Determine interests in detail
Tailor a theory of action			
Craft strategic elements of the overall strategy		Craft key descriptors of systems change	Determine key strategic factors
Develop strategic MOMs		Develop strategic measures of merit	
Formulate complete strategy	Inherit JFC plan	Map a system strategy	Formulate a strategy
Build campaigns	JFC Campaign planning process	Build campaigns	
Develop Lines of effort or operations	Joint air operations plan (JAOP)		
Organize for success (theory of organization)		Organize for success	
Delegate the campaign	Daily air tasking order		
Campaign to win	"Tactical" objectives & Tactical tasks	Campaign to win	
Learn and reframe (theory of learning)		Finish with finesse	

Mastering the situation of the observed system is pursued by what Boyd called destructive deduction (un-structuring your own perceptions of reality by relentless iterations of deduction).[5]

Create a Future Picture. The future picture is anchored in the theory of reality proceeding from a mastery of the situation. A future picture goes beyond, objectives, goals and visions. This conceptualization of comprehending the 'ends' allows for maximum reality-based imagination and creativity. The future picture does not take liberty with ends at all but rather expands what is possible by asking, "what do we want the world to look like when we are finished?"[6] The approach embedded in this question may alter the strategy outcome more than a dogmatic execution of objectives from above (while remaining faithful to delegated ends). AOs in this stage must often survey all relevant standing guidance in addition to interpreting current guidance but that is just the start of creating a future picture.

Tailoring Theories of Action. Before some of the models go any further they develop *theories for the action* to provide the logic of transformation to the strategic elements stage. These theories stem from strategic concepts such as General Franks "Lines and Slices," John Warden's parallel warfare, effects-based targeting, strategic paralysis, Pape's four coercive air strategies, etc. Such concepts are fused together in an enlightened theory of action tailored to the difference between the observed system and the desired system. These concepts help explain how reality--in the form of strategic concepts--will work for us. Thus, the tailoring of theory itself makes this stage a key time for strategic creativity at the most fundamental level: theory. This theory of action stage can be pursued by what John Boyd called creative induction (restructuring our perceptions through integration and synthesis into a new concept).[7]

Craft Strategic Elements. The theory of action casts light on the *strategic elements* that will comprise the parts of the articulated strategy. Crafting strategic elements is another key stage to alter the ways of the overall strategy using old and new

[5] John R. Boyd, "Destruction and Creation," (1976), 2.
[6] Warden and Russell, *Winning in Fasttime: Harness the Competitive Advantage of Prometheus in Business and Life*, 63, 66.
[7] John Boyd, "Destruction and Creation," 3.

strategic concepts. These strategic elements are the key descriptors of system change, key strategic factors, conditions, strategic effects, or key factors of success required to create the future picture (as described in Chapter 1). If these elements came to pass in the 'observed system,' is it reasonable to assume the result would become the future picture? That is one way to check this work. This stage should feel very architectural as John Warden indicates in his book.

Another way to think of this stage is the 'what' and 'how' distinction from engineering. This move from 'what' to 'how' resembles the engineer's transition from 'what' to 'how' (as described in Chapter 1). As an non-dogmatic rule of thumb, John Warden taught us at Squadron Officer School saying, if there are less than four [strategic elements] you are probably missing some part of reality. If there are more than twelve, you are probably are not elemental enough.

Develop Strategic Measures of Merit. Each strategic element is paired with a *measure of merit*. Developing measures of merit at this stage is heavily influenced by the Prometheus model but also appears in design literature as the inverse—reframing criteria. Measures of merit (MOMs) discuss how we will know each strategic element is working. Reframing criteria establish how we know an element is failing and thus need to reframe the strategy. According to the Prometheus model, these MOMs should be formed at this point in the process to ensure strategy is measured instead of operations alone (the norm). If measures of performance or measures of effectiveness are relied upon at the campaign level, it is possible to drift from what really matters—the strategic elements of the strategy. At the same time lower level measures help observe changing realities to leverage emergent strategy per Mintzberg's model in Chapter 1.

Planners will develop measures of effectiveness (MOEs) and measures of performance (MOPs) at lower levels, but these will only measure progress toward the derived lower objectives. JP 5-0 describes MOEs as measuring if we are "doing the right things" and MOPs as "doing things right."[8] Yet, with John Warden's description of MOMs being developed before you even get to COAs, I conjecture we could conceive of measurement happening at three different levels of strategizing.

- MOMs Level 3

[8] JP 5-0. Joint Operation Planning. III-60.

- MOEs Level 4
- MOPs Level 5

Since we often get what we measure, measuring at the correct level is critical but no measurement is necessarily less important due to the unity of strategizing across the levels. To sum, MOMs serve as a strategic dashboard and can be updated with the strategy as reframing is required. MOEs could serve as operational strategy measures in each component. Also, inverted MOEs could also be a good source of reframing criteria by serving as what Trent Mills calls "sensors."[9] And MOPs could serve as a dashboard for the most adaptive level of strategizing where ways are continuously adapted to bottom-up, emergent realities.

Formulate the Complete Strategy. *Formulating the comprehensive strategy* combines all previous stages into a form of communication. By summarizing all previous stages, this becomes the conceptual organizing documents for detailed planning. At this point, the comprehensive strategy may look like "the plan" as Colin Gray describes it. "In effect, the plan, which is to say the strategy, explains how military, inter alia, success will be made to happen."[10] A comprehensive strategy can be communicated orally, using a conceptual map,[11] mission narrative,[12] the strategic elements each paired with MOMs in a one pager,[13] or any other written format that captures the coherence and cogency of the strategy.

Build Campaigns. *Building campaigns* fulfills the strategic elements with detailed solutions regarding COAs and forces that will fulfill the strategic elements. This is really a disaggregation stage so different parts of the organization can develop their lower level ways and means into coherent strategies to scale. At this stage the MDMP and JOPP models are very applicable as these models lead practitioners through COA development, analysis, comparison, and selection in excellent detail. Thus, if a line must be drawn, this is where the planning process begins as such.

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[9] By inverted I mean, if a MOP helps determine if you are doing the right things, they may be the same things that tell you if you are doing things wrong and thus, need to reframe.
[10] Gray, *The Strategy Bridge: Theory for Practice*, 241.
[11] Reilly, "Operational Design: Shaping Decision Analysis through Cognitive Vision," 46.
[12] Studies, "Art of Design: Student Version 2.0," 141.
[13] Warden and Russell, *Winning in Fasttime: Harness the Competitive Advantage of Prometheus in Business and Life*, 103-06.

Develop Lines of Effort or Operation. Lines of effort carry individual themes from strategic elements into a specified form of action or operations. Joint Publication 1-02 defines lines of operations (LOO) as "a logical line that connects actions on nodes and/or decisive points related in time and purpose with an objective(s)."[14] Taken all together, these conceptual or logical lines of operation portray the alignment of strategy to an end state. These are based off specific COAs selected in the 'building campaigns' phase. They can be drafted earlier as a part of the conceptual map from the comprehensive strategy stage as detailed by Jeff Reilly.[15] Yet here in this stage of the in the planning process, the LOOs take on a new organizing reality and levels of detail.

Organize for Success. *Organization is conceptualized* throughout the strategy process. However, to organize for success this stage sets the necessary wheels into motion to make the necessary organization materialize along the LOOs. This step can't be assumed from the current de fault organization. Thus, organization too is a part of the over-arching planning process. The strategy and the organization must marry to have hope of success beyond chance.

Delegate the Campaign. Once organized and in place, the strategy is implemented by *campaign delegation*. With the campaign delegated, the job of stakeholders will be to match the deliberate strategy with every new reality they encounter resulting in an emergent strategy. The difference between the deliberate strategy and the emergent strategy becomes the realized strategy which hopefully still matches the future picture or desired system.[16] In the military this stage looks like orders going out to specific unit plus establishment of C2 at this level of war.

Campaign to Win. *Campaigning to win* keeps the strategy on course and adjusted. The strategy requires agents. These agents are not just leaders but the embodiment of the strategy itself with an ability to somehow empower all players to become custodians of the strategy. Strategy implementation requires leaders down to as many levels as possible that build morale force, embody the strategy, and marshal the campaign with the aim of 'victory or death.'

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[14] Joint Publication 1-02. *DoD Dictionary of Military and Associated Terms*, 8 November 2010 as amended through 15 May 2011, 217.
[15] Reilly, "Operational Design: Shaping Decision Analysis through Cognitive Vision," 14.
[16] Mintzberg, Ahlstrand, and Lampel, *Strategy Safari: The Complete Guide through the Wilds of Strategic Management*, 12.

Learn and reframe. The majority of models honor the need for *learning and reframing* as a learning organization. When an organization is very high functioning this may look like 'strategy on the move' with fluid adjustments at a design level based on new realities in the observed system. In some way this is like a giant version of Boyd's OODA loop (observe-orient-decide-act). The side that learns faster is likely to win.

Caveats

There are several good-faith caveats to this synthesis. First, authors may frame their work differently than I have if provided with the synthesis framework. I've done my best to be true to their work while giving it a form that practitioners can refer to for practice. For example, at this level of synthesis it is possible to stray from the author's original intent when 'branding' one of their stages with a function. This involves interpretation and any errors of judgment at this level are purely mine.

Second, I've attempted to find a level-less synthesis yet many of the works were built with specific levels in mind. This cannot be perfectly clean. However, just as strategizing is an ability that can transcend levels in organization, methods may be useful at more than one level too. This just depends on flexibility in concepts in each model. I've attempted to stay true to original works while searching for the transcendent value of their thoughts.

Third, time is linear. All of the models vary widely in their view of time. I've taken liberties here by saying, if a group really executed this model in time, which order would they fall into? Here, almost universally, I hold to the order in which the stages are presented in the original works unless otherwise noted. But there is no way to really lay out stages in a way that honors new design literature that makes parallel development of the environment frame, problem frame and solution frame an article of faith.

Fourth, in a very few cases, I introduce a concept from authors that may not be grouped with their own presentation of stages. This is not an (arrogant) attempt to improve upon an author's work but rather to suggest the possibility that if presented with this synthesis format, these additional concepts would likely find their place here too. Conversely, if original authors were to see empty boxes in their model they may appeal, thinking 'we did indeed think about MOMs at the strategic level' (for example). I simply

summarized the stages of their methods as described but may not have accounted for stages listed separately in their various discourses.

Fifth, these functions focus on the 'genus' level. Several models have 'species' of stages under each of these. For example, MDMP has seventeen sub-stages under 'Mission Analysis.' The goal is to keep this at a stage-wise level a practitioner could follow if desired, with the references provided for further detailed execution.

Examples and elaboration of the key creativity stages follow. Again, it must be emphasized that creativity can happen—or not happen—at any stage in the strategy, planning and execution process. My purpose here is to show, where in the stages practitioners have maximum access to shape the deliberate ways portion of the ends-ways-means model.

Three Key Stages with Examples

The three stages that seem to allow for maximum realistic creativity in strategy are developing the future picture, a theory of action and the strategic elements. Viewed together, the following over simplifications capture the gist I derived from the various readings. This follows the why-what-how process found in several authors but called "multi-level thinking" by Peter Checkland. Just keep in mind that when you focus on a specific level of strategy, someone's 'what' can be another level's 'why.' Thus, these are over simplifications to summarize the spirit of each stage before we focus on three of them.[17]

Initiate a beginning	'Why' we are doing this.
Master the situation	'What is reality' at the deepest level possible.
Create a future picture	'Where' we will be once we do this.
Tailor a theory of action	'What' ideas/concepts can trump the situation.
Craft strategic elements	'What' we are going to do conceptually.
Develop measures of merit	'How we know' we are right (reframe inverted).
Form the strategy	'How to do it' conceptually with the elements.
Build campaigns	'How to get it done' in detail and who will do it.

Highlighting these stages is not to imply creativity begins and ends here. As previously emphasized, creativity can be expressed end-to-end, from beginning to learning. It is simply to note these are the stages that have maximum influence on the

[17] Checkland, *Systems Thinking, Systems Practice*, A24.

'ways' portion of the overall strategy. Once we turn to the 'how' stages of strategy development, 'means' rationality inherently curtails the universe of possible ways that can be chosen in the strategy. But there is still room for vast creativity in COA development stages regarding how means will be used to honor the creative ways in the strategy. The three key stages for creativity in ways can be understood by examples and by looking across the professions for the range of meanings.

Future Picture. Across the professions there is a very wide range of meaning during this stage. In engineering and the military this is centered on problems due to the nature of their work. Military design literature has only begun to expand this stage from problem definition to problem framing but the problem is still the focus. The one exception is the literature that deals with the 'desired system' (DS) which is much broader than a problem per se. In business, this stage can range from a 'system of objectives' to a wide-open 'canvas.' In the design professions this stage can mean outline proposal, identification, and while unspoken as a stage, creative imagination of design versions. And in game theory this stage appears to be driven by views of non-zero sum games.

John Warden's 'develop the future picture' seems to allow for maximum realistic strategic creativity. To describe this stage he asks the searching question, *"What do we want the world to look like when we are done?"* By asking this question and calling it a future picture we simultaneously open up the possibility of leveraging the given situation for a broader purpose without confining the next stages by a 'problem.' This is similar to the 'desired system' description now emerging in military design.

Theory of Action. As discussed in Chapter 1, the theory of action contains the concepts and logic upon which the strategy turns and works. There are some key examples for a US perspective from this century. An implied WWII theory of action that preceded further strategizing was "Europe First," contained in Admiral Stark's Plan Dog memorandum. It contained "reasoning" which General Marshall found "'entirely favorable' because the Nazi threat had invalidated other strategies." "Europe first" carried with it much more than a plan. It contained a "strategic premise" with gravitas

that President Roosevelt agreed with too.[18] "Europe First" was only a prioritization—the logic lay in the shoring up of alliances, choosing the more significant driving fight for the future of the world, etc. that the prioritization would effect. This, then created inertia toward total victory. It is this idea of 'premise'—upon which the rest of the strategy derives its logic and effect—which is what a theory of action is all about.

As described earlier, the fused concepts preceding Operation Desert Storm represented a unique theory of action tailored to the situation. The fused concepts included a systems approach drawn from mastering the situation, parallel war, strategic paralysis, effects-based rationality for precision fires, and a targeting model to execute the concepts (Five Rings). These concepts were the ideological basis for Instant Thunder and winning the minds of Generals Schwarzkopf and Powell. I speculate the clarity in the theory of action is one reason General Horner asked then Lieutenant Colonel Deptula to stay in Saudi Arabia even as Colonel Warden was sent back home.[19]

A more recent example of a brilliant theory of action is the Afghan Model. The Afghan Model idea combined the concepts of widely distributed special operations forces (SOF) operations, with a large conventional air force, and massing indigenous allies. No one concept—like many with transfer value—was unique but tailored and together they became unique. The pre-counterinsurgency (COIN) Afghan Model matched the nature of the enemy, environment, urgency of the mission, and political timelines for results. The scale and combination of the concepts in this counter-terrorism (CT) subset of the Afghan Model represented a distinct and successful theory of action that can be independently studied as a unique theory of action.[20]

"Lines and Slices" represents a theory of action from Phase 1 in Operation Iraqi Freedom. The remarkable success and scale of Phase 1 operations can be completely lost in the contemporary scorn this conflict and our strategy after the fall of Baghdad. Also, there are some norms that help explain what happened. Ikle notes that when you use the

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[18] Edward S. Miller, *War Plan Orange: The U.S. Strategy to Defeat Japan, 1897-1945* (Annapolis, Md.: Naval Institute Press, 1991), 270.
[19] Richard T. Reynolds, *Heart of the Storm: The Genesis of the Air Campaign against Iraq* (Maxwell Air Force Base, Ala.: Air University Press, 1995), 129.
[20] Craig Wills Richard Andres, and Thomas Griffith, Jr., "Winning with Allies: The Strategic Value of the Afghan Model," *International Security* 30, no. 3, no. Winter 2005/2006 (2005): 5.

war machine you only buy Act 1 of a larger drama.[21] If you could put yourself in the shoes of someone responsible for commanding the success of something this massive you may understand why General Franks said the following to Deputy Secretary of Defense the night before the Iraq War: "You pay attention to the day after, I'll pay attention to the day of."[22]

Thus, if viewed from a purely military perspective, Lines and Slices was a theory of action that shed light on the overall strategy resulting in a successful invasion to accomplish the political objectives. General Franks called this theory his "grand strategy" in a conversation with General Renuart.[23] This indicates the significance of the theory (not level of war definition *per se*). Accordingly, Iraqi Freedom Phase 1 worked very well for what it was designed to do.

A final contemporary example comes during the insurgency period of Iraq. When General James Mattis commanded the 1 Marine Division after 2003 and during Fallujah I, he captured a theory of action in a sentence almost as simple as 'Europe First.' At this time, security and rebuilding concerns coexisted in a bad marriage for operations. To simplify the entire way ahead, General Mattis quoted the Roman named Sulla and said of our operations, there shall be "no greater friend, no worse enemy."[24] Not only did 'no greater friend' capture rebuilding and 'no worse enemy' capture security operations, but the phrase alerted fence-sitters that this was an appeal to Iraqi hearts and minds in the midst of the chaos. Like 'Europe First' this phrase contained the theoretical premise for the strategies that would follow thus qualifying it as an implied (and motivating) theory of action.

There is no need to 'box' the theory of action stage into a certain form. The theory of action may indeed inherit concepts from mastery like centers of gravity, critical factors analysis, etc., but the concepts need not be a 1:1 representation of these familiar concepts. For example, concepts like parallel warfare, systems approach, effects-based thinking, lines and slices, and the Afghan model were concepts separate and distinct from

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[21] Fred Charles Iklé, *Every War Must End*, 2nd rev. ed. (New York: Columbia University Press, 2005), 8.
[22] Gideon Rose, *How Wars End: Why We Always Fight the Last Battle--A History of American Intervention from World War I to Afghanistan*, 1st Simon & Schuster hardcover ed. (New York: Simon & Schuster, 2010), 3.
[23] Tommy Franks, *American Soldier*, 1st ed. (New York: Regan Books, 2004), 341.
[24] General James Mattis Wikipedia entry, "James Mattis," http://en.wikipedia.org/wiki/James_Mattis (accessed 6 May 2011).

elements of design in JP 5-0.[25] At the same time, like an artist with a full pallet of paint, a theory of design may borrow anything from context mastery (JIPOE) like centers of gravity, critical factors, critical requirements, key strategic factors, etc.

Strategic Elements. Jeff Reilly notes in his clarifying work on operational design, "as the JFC completes the initiation and mission analysis steps of the JOPP, one of the products he should develop is a preliminary vision of the theater (level 3) or operational strategy (level 4)."[26] This is where strategists turn from the logic of transformation in the theory of action to the actual sub-elements of the strategy. He calls this the 'overarching vision for strategy' which can best be captured in a conceptual map.

This overarching vision contains the strategic elements (discussed in Chapter 1). The strategic element product may take on different forms. For example, Reilly explains how these strategic elements are arrayed across levels of war (reference Chapter 1 discussion on strategy happening at multiple levels based on the scale of operations).[27]

An example of a strategy with articulated strategic elements is found in Jeff Reilly's work. He shows one conceptual map that captures activities along the instruments of national power with 'objectives' that could equally be considered 'conditions in' or 'effects on' the desired system. Each one also contains articulate measures of merit, though they are not called that in the map. When arranged as such, there are five strategic elements with associated measures of merit.[28]

1. Deny Al-Qaida (AQ) Safehaven
    a. MOM: Pakistan (PAK) Government Supports Safehaven Denial
    b. MOM: AQ Isolated and Marginalized
    c. MOM: PAK Support to Taliban Eliminated
2. Reverse Taliban Momentum
    a. MOM: Government Rule of Law Established
    b. MOM: Taliban Isolated
    c. MOM: Quetta Shura Marginalized
3. Deny Taliban Overthrow of Government
    a. MOM: Government Confidence Gap Minimized
    b. MOM: Government Corruption Reduced to Norm
4. Strengthen Capacity of Afghan National Security Forces and Government.

[25] JP-5-0. Joint Operations Planning, IV-5.
[26] Reilly, "Operational Design: Shaping Decision Analysis through Cognitive Vision," 46.
[27] Also, to apply Dr. Reilly one needs to conceive of his conceptual map as something that is happening in the next strategy formulation stage. This stage, like the theory of action, is still conceptual about the nature of the strategy's 'whats' and 'whys' before getting into the conceptual 'hows' of the conceptual maps.
[28] Reilly, "Operational Design: Shaping Decision Analysis through Cognitive Vision," 89.

    a. MOM: Security Forces at Sufficient Levels to Defend Against Taliban
    b. MOM: Security Forces Capable of Providing Local Security
5. Security Forces and Government Lead Responsibility for Future
    a. MOM: Capable, Functioning Government
    b. MOM: Confidence Gap Minimized
    c. MOM: Rule of Law Established

These strategic elements read like a system of objectives. In some models they are called strategic effects. From Prometheus we see the strategic elements can be written as 'key descriptors of systems change.' The Third Army approach calls these stratagems in the meaning of schema, not tricks per se. And it is possible for these same elements above to be written as conditions that must result from the COAs that will be developed in further stages.

A second example from Afghanistan comes from General (retired) McChrystal's initial assessment. His assessment in Afghanistan possessed clear strategic elements to implement the President's new 2009 strategy. These elements included:[29]

1. Redefine the fight.
2. Grasp the criticality of time.
3. Change the operational culture (population centric COIN).
4. Improve unity of effort and command.
5. Improve effectiveness through greater partnering with ANSF.
6. Prioritize responsive and accountable governance.
7. Gain the initiative.
8. Focus resources.

Once approved, these elements would go on to shape detailed designs, conceptual models, LOEs, etc. For small-scale peacetime staff work, it is entirely plausible to have a conceptual map at this point where each strategic elements feeds an LOE directly when no large-scale campaign is required for the task.

[29] Stanley A. McChrystal, "COMISAF's Initial Assessment," ed. ISAF (Kabul, Afghanistan: ISAF, 2009), 1-1 - 1-3.

Chapter 5

What Theory and the Models Tell Us

Creativity -- like human life itself -- begins in darkness.
Julia Cameron

The abstract subject of creativity in ways has been placed in the context of theory (Chapter 1) and real world purposeful activity models across the professions (Chapters 2-4). From these chapters a few observations may make strategic creativity less abstract. Conclusions about creativity in ways can take on new importance given the challenges thrust upon the military and our nation.

A Place for Strategic Creativity

While creativity can and could occur at every stage it improves results, the specific question here is at what point in strategy development processes can creative ways most impact the overall intended strategy? Three stages appear to have the greatest access and potential impact on shaping ways in strategy: the future picture, theory of action and strategic elements. In these three stages, thought is inherently least constrained by ends and means. The future picture stage is centered on the ends but allows for ways when this stage is conceived of as imaging the ends with corresponding future pictures. The strategic element stage makes the turn toward more detailed means considerations but can still incorporate creative ways. Between these two stages is the theory of action work that is theoretically least constrained by ends and means. The role of these stages for creativity in ways can be further conceptualized by Figure 6 and discussion.

The future picture stage is the first clear moment for creativity in ways. But the conceptualization of this stage matters greatly. If this stage is viewed dogmatically

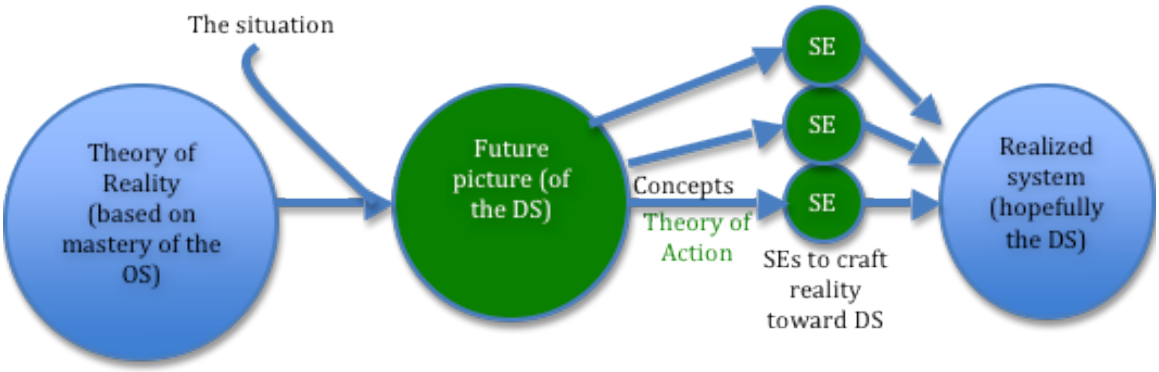

Fig 6: Stages of Maximum Access to Ways (in green)

as receiving the ends from above to frame the problem, then it is possible to miss important potentials from the situation. Frequently, in the military we feel out-of-our-lanes if we imagine potential future pictures. The end is treated as something sacred from 'higher' authority or the political sphere rather than the first opportunity for genuine creativity in strategy that still completely honors the delegated ends.

The next stage, the theory of action, contains the first stage of maximum creativity. In this stage clever ways can subvert the opposition at a purely theoretical level before the strategy is even formed. Big ideas at this level carry the logic of transformation for the strategy and can influence ways in grand strokes like Warden's Five Rings. Of all the stages in the models this is the one that seemed to receive the least attention. Perhaps, in a rush to solve problems, strategists have a tendency to move right to strategic elements that begin to take the form of a solution.

Finally, the sub-strategic elements also involve very significant creativity. The strategic elements are the descriptions of how the system will change, the conditions of the desired system, or the key strategic factors like critical vulnerabilities in the observed system. This work demands critical transfer of past strategic concepts and potentially the creation of new ones.

Is a Theory of Action Left to Chance in our Methods?

Semblances of this stage appear in 9 of the 21 models, albeit sometimes dimly. Since this is a stage with maximum access to creativity in ways, one could ask, "have we left this stage to chance in strategy?" Five matters point toward this possibility.

1. Theory of action literature is ungathered.
2. FM 5-0 and *Art of Design 2.0* do not expressly treat this subject.[1]
3. Looking across the models, theory of action appears in part across professions but there are several perceived holes at this stage.[2]
4. This kind of theorizing is uncritically resigned to genius or operational art.
5. Modern examples of ToAs emerged outside of the 'normal' processes.

I'll briefly focus here on this fifth matter: how theories of action emerged in the three wartime examples outside of normal strategy development methods.

First, the theory behind Instant Thunder was not embedded in the deliberate plans for the operation. This is not abnormal. Standing Operations Plans (OPLANS) may always differ from the one executed. But the creative strategizing contained in the theory of action behind Instant Thunder made the difference very great. "Significantly, the air campaign plan ultimately arrived at had nothing in common with the contingency plans that CENTCOM had previously developed. The earlier plans envisaged air attacks against Iraqi leadership and command and control nodes in Baghdad as the final part of a campaign rather than as the opening gambit."[3] Furthermore, John Warden, Dave Deptula and their team were not originally a part of the theater planning cells. A good idea can come from anywhere but it is another sign that the *de facto* strategy development models were not leading to a creative theory of action of any stripe that we still discuss today.

Second, "Lines and Slices" for phase 1 OIF did not appear to emerge from the normal planning process. One source close to the matter seemed to recall that lines and slices probably developed between Secretary Rumsfeld and General Franks. In his book *American Soldier*, General Franks refers to this model as the result of his brainstorming.[4] So in either case it appears this theory of action did not result from the normal JOPP mission analysis stage. Clearly, normal JOPP procedures were running in the background. Perhaps we could abstract that mission analysis gave General Franks the

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[1] At the same time Art of Design 2.0 is filled with numerous insights and aids for tailoring a theory of action if someone could abstract, that, part of the Operational Approach is the need to develop a theory of action. Currently, the work of developing a theory of action is not laid out that way in this excellent work.
[2] There are many possible reasons I could not find this stage in 21 of 21 models. First, the stage may be implied and I missed it. Second, a profession may have a lower demand for theorizing in general. Third, the scale of operations in a profession may demand less theorizing. Fourth, professions may vary in their tolerance to be wrong about reality. Higher tolerance professions may demand less theorizing. Likewise, a profession may have greater acceptance of learning via trial by error based on the stakes.
[3] Lambeth, *The Transformation of American Air Power*, 107.
[4] Franks, *American Soldier*, 335.

idea. Further, it is perfectly desirable for the theory of action to form in the Commander's mind--perhaps even ideal as it is his/her process. But it is important to note that like Warden's Checkmate, it is another example of this key stage forming outside of our *de facto* methods for strategy.

Third, the Afghan Model arose from a (properly) Special Operations Command (SOCOM)-dominated Phase 1 operation. Elements of the Afghan Model as such were briefed and heavily influenced by SOCOM. Clearly General Franks approved of the model (before it was even conceived as such) but SOCOM's influence on such a large scale is another non-standard point to how we arrive at theories of action.

I conjecture that when we reflect on the most creative strategies in military history they were often creative at this theory level first. The most creative strategies often reach the level of theorizing preceding specific strategies. If this is true, its absence in our current doctrine is noteworthy.

Theorizing is Central to Strategizing

In Chapter 1 we covered the significance of Clausewitz advising us to tailor our theories of war to each new era. By focusing on an 'era' we could say he meant what we are calling the theory of reality in the military situation. Then, we extend the theorizing principle to action conceptualization stages. This is in keeping with the un-gathered theory of action literature that further suggests we should tailor our theories to each new situation. This leads to a simple conclusion that may not be an intuitive part of real-world strategy development: tailoring theory for action is itself is an implicit part of strategy method.

In everyday AO work on strategies across our national security enterprise, tailoring theory doesn't mesh well with a Friday deadline. Nor is it a normal part of our strategic culture. We often take our theories unchecked into strategizing. There is an understandable inertia not to question our theories of reality nor action but to jump right into developing strategic elements. It seems that we have a natural tendency to look for the Thucydides example of strategic content before we take Clausewitz' advice to tailor theory that casts its light on which concepts to include in the first place.

Tailoring theory really has two main parts up front. Since strategy is apprehending and crafting reality, strategists implicitly must consider their views of both reality and their actions. Updating our theories of reality is not necessarily the same as mission analysis or JIPOE. Groupthink could lead a group to an understanding of the situation without any fundamental altering of their preconceived notions of the situation. Thus, being express about tailoring both our theories of reality and action could make a difference for creativity. By other terms, the military design movement is attempting to do this very thing.

When performing the conscious tailoring of our theories, the transfer value and change proposition comes into play twice during the main creative phases. First, as Clausewitz hinted, we ought adjust the theory of reality behind the strategy as a part of our *method*. Then in the theory of action stage we are tailoring the *content* of the strategy itself—transferring the timeless and creating the timely. This is how Clausewitz extends to the concept of method or process. Tailoring theory is a major part of creative strategizing and should be a part of our methods. Currently, the military design literature has broadly picked up on this, but lacks express theory of action guidance for the theory work to be done between the problem frame and the operational approach.

Other professions have also picked up on the importance of transfer value and change. Henry Mintzberg recently wrote, "Managers who are obsessed with either change or continuity are bound to do harm. All managers have to sense when to exploit an established crop of strategies, and when to encourage new strains to replace them."[5] This leads us to evaluate what is meant by ways.

Our Young and Varied Meaning of 'Ways'

A search for theory on creativity in strategy immediately takes one to the meaning of 'ways.' When doing so, two important things jump out. First, the express usage of 'ways' in our ends-ways-means lexicon is as recent as 1979. As a result, theory was biased toward means-ends rationality in a manner we can hardly understand today due to the popularity of ends-ways-means. This triad is so central now that Colin Grey calls it

[5] Mintzberg, *Tracking Strategies: Toward a General Theory*, 379.

one of the "skeleton keys" of Strategy.[6] But the lack of express theory about the meaning of 'ways' promotes a drift to means-centric reasoning.

Second, 'ways' has a spectrum of meanings ranging from definitions that convey 'action' and others that convey 'ideas.' If a practitioner only thinks of ways as COAs, one may be cut off mentally from the heart of strategizing in the realm of ideas. Indeed, as the whole purposeful activity cycle crescendos toward action, ideas rightly take on the form of actions in COAs. But if a practitioner only thinks of ways as COAs in the theorizing stages, they could be cut off from Wylie's "widest possible field" within which our intellect can creatively operate.

What is the Source of Our Creative Content?

The Chapter 2 architecture section mentioned an application of the book *A Pattern Language*. As previously noted, *A Pattern Language* is a capture of the timeless fundamentals of making towns and buildings. These fundamentals are patterns that describe, "a problem which occurs over and over again in our environment, and then describes the core of the solution to that problem, in such a way that you can use this solution a million times over, without ever doing it the same way twice."[7] Does military theory have its own pattern language?

Thucydides' example of transfer value in strategic content was made up front with this pattern language in mind. The Athenians' characterization of national motives—fear, honor, interest—captured a problem which occurs over and over again in understanding our enemies (and ourselves). Thucydides' pattern is replicated across continent, era and culture when encountering the problem of properly estimating the meaning of national motives in the equation of the current situation. This strategic concept from Thucydides' example is but one in the lexicon of our 'pattern language' that can be drawn from our general strategic theory.

Imagine such a lexicon of Strategy concepts listed out with simple descriptions. Imagine that these concepts are drawn from Colin Gray's list of classics in general strategic theory: Clausewitz, Sun Tzu, Thucydides, Machiavelli, Jomini, Liddel Hart,

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[6] Gray, *The Strategy Bridge: Theory for Practice*, 279.
[7] Alexander, Ishikawa, and Silverstein, *A Pattern Language: Towns, Buildings, Construction*, x.

Wylie, Luttwak, Brodie and Schelling. Just the independent concepts in Sun Tzu alone would create a substantial list.[8] Could we imagine such a list as patterns, "core [to] the solution [of] that problem, in such a way that you can use this solution a million times over, without ever doing it the same way twice"? Such a view could foster part of Wylie's "widest possible field for [our] intellect to operate in" for tailoring strategy to a situation.[9] Such a pattern language would be like the pallet of paint a strategist draws upon for transfer value to a new picture. The creativity capacity of such a pallet could result in "a million" different pictures "without ever doing it the same way twice."

Where Clausewitz' discussion provided a basis for the idea of tailoring theory as a part of strategy, Thucydides provided an example of the concepts to be transferred and adapted. As such it is an example of the reservoir to be drawn upon for transfer value to our situation. The purpose here is not to say we need such a list but to wonder if the creative pattern language approach is reflected in the methods of our doctrine.

JP 5-0 seems to relegate creative strategic content to operational art. A key JP 5-0 Figure IV-1 shows operational art bounding the whole strategizing and planning process

[8] This does not even incorperate how a military strategists' pattern language may span outside general strategic theory into cognitive theory, social theory, international relations theory, economic theory, etc.
[9] Wylie, *Military Strategy : A General Theory of Power Control*, 30.

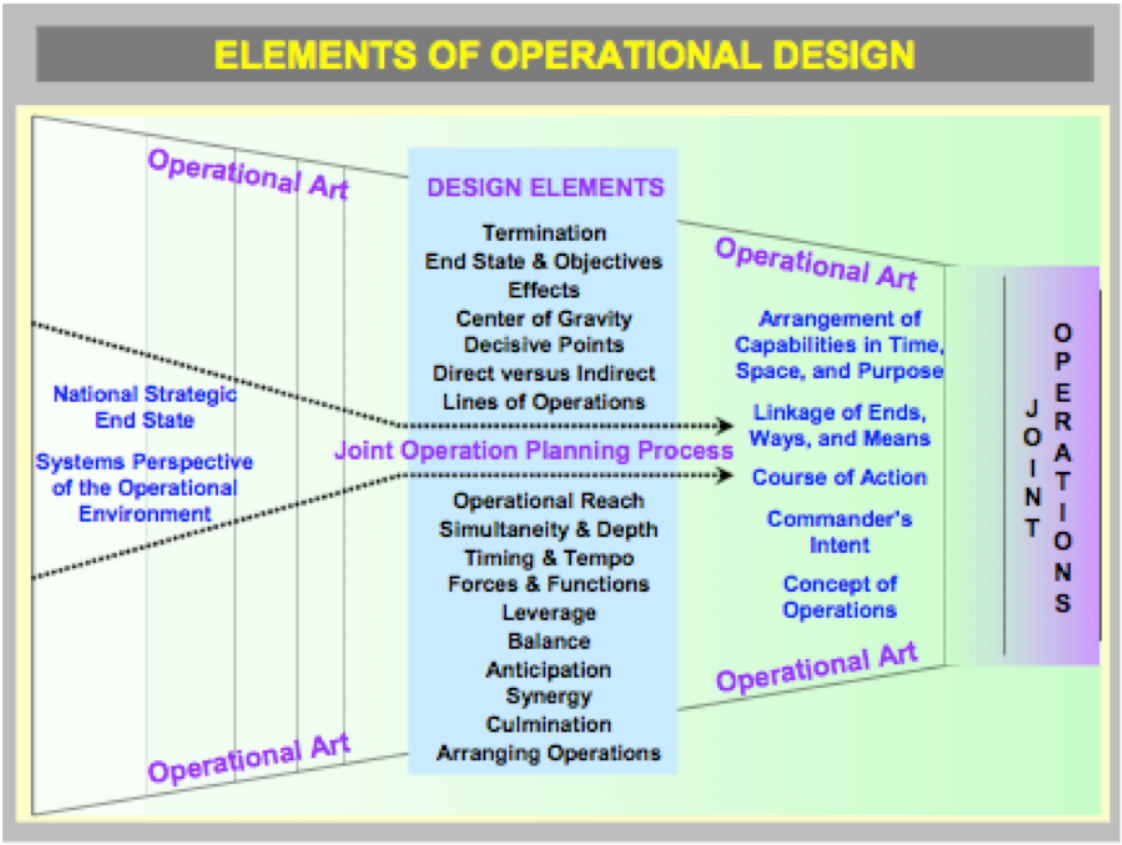

Fig 7: Source: JP 5-0 Elements of Design. Office of the Chairman, Joint Chiefs of Staff. "Joint Publication 5-0, Joint Operation Planning." edited by J7. Washington DC: Joint Chiefs of Staff, 26 December 2006, III-60, fig IV-1.

in the military.[10] Without further detail this seems to be tantamount to saying either creativity bounds the whole strategizing process which is a truism or creativity expressed in operational art only draws upon its seventeen elements of design.[11]

In Jeff Reilly's clarifying work, he focuses on the seam between operational art and design. This is a strident work that presses into the gray seam between the two. By intentionally staying consistent with doctrine, this forces him to indicate our patterns from strategizing are drawn from the seventeen "elements of design" as depicted in his figure on operational design.[12] It appears his two constraining factors were a scope largely focused on level 4 strategy and the need to match current doctrine where possible.

[10] JP 5-0. Joint Operational Planning, Page IV-5, figure IV-I
[11] Reilly, "Operational Design: Shaping Decision Analysis through Cognitive Vision," 6. Dr. Reilly is clear that mixing 'art' and 'design' elements adds to the problem. "In 1995, the keystone document, Joint Publication 3-0 (Doctrine for Joint Operations), introduced the fourteen facets of operational art. These facets evolved in subsequent iterations of joint doctrine into the seventeen elements of operational design.7
[12] Ibid., 10, figure 4.

As such, it appears doctrine may have corralled him away from pointing toward our military pattern language in Gray's definition of general strategic theory.

Overall, in the three crucial stages of future picture, theory of action and strategic elements, concepts are the paint of creative ways. Our current doctrine honors creative thinking and operational art but does not explicitly tell us upon where to draw the concepts for part of our creativity: the part with timeless transfer value. In this way, current doctrine does not expressly honor the concept of our pattern language for creativity in ways.

The Idea Delta

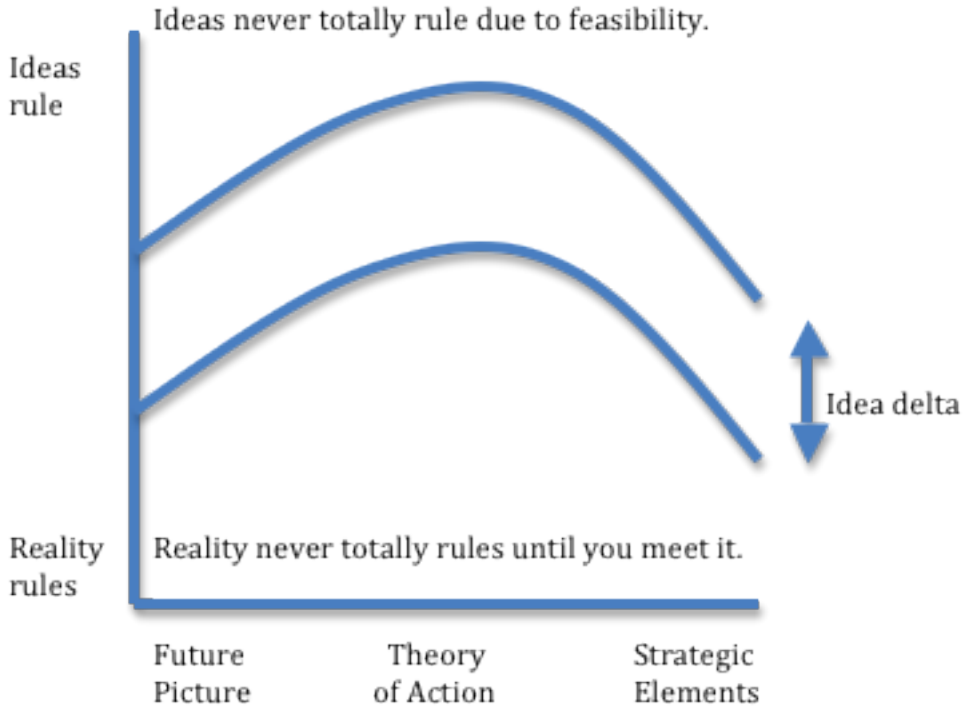

Fig 8: The Idea Potential Delta in Strategy Development

When opening up the concept of ways, one corollary question was, "are we as creative as we can be before we are as creative as we must be?" This seems to involve a host of variables; I'll address three. First is the pervasive tension between realism and idealism. The realism/idealism distinction can be found in most professions as an

overarching concept like the is/ought or normative/positive distinction. As shown in this figure, we can conceive of this tension as the 'ceiling' and 'floor' of the idea potential.

Second, as shown in Figure 7, the room for ideas to shape ways may vary across these key conceptual stages. Arguably, the future picture has vast room for imagining what is feasible within the given ends but is limited by the ends themselves. The theory of action draws upon the vast sea of strategic concepts and may only be limited by our ability to transfer strategic content from existing theory and discover new principles as described by Clausewitz. The strategic elements, like the future picture stage, has vast room for imagining what is feasible and effective but will be more constrained than the canvas-like future picture since the strategic elements become the basis for detailed planning and problem solving.

Third, Simon's satisficing seems to play into the idea delta. The tendency to take the first answer that works instead of a better idea is influenced by deadlines on strategy shops. During the Cuban Missile Crisis, it took President Kennedy's Executive Committee several hard days to wind up with the perfect act of compellence with the naval blockade.[13] AOs are often asked to weigh in on very big issues with a day or two to respond (sometimes less). Thus, time-induced satsificing is likely to lower the idea potential. So the real question in crafting reality is, "how much can ideas shape reality as much as they reflect it?"

This question was navigated by Alexander Wendt in International Relations, indirectly by Thomas Kuhn in the Philosophy of Science. Wendt's theory of international relations proposed that "cultural selection" of pro-social identities can lead to greater cooperation rather than just having conflict based on the culture conflicts that exist a la Samuel Huntington.[14] Thus, ideas can shape reality as much as they represent reality. In science, Kuhn noted that a scientist can reformulate theory in a way that allows one to see an anomaly that was always present. This is called an invisible revolution and uses Kuhn uses Dalton's atomic theory as an example.[15] In this way, idea

[13] Allison and Zelikow, *Essence of Decision: Explaining the Cuban Missile Crisis*, 109-20, 348.
[14] Wendt, *Social Theory of International Politics*, 363-65.
[15] Thomas S. Kuhn, *The Structure of Scientific Revolutions*, 3rd ed. (Chicago, IL: University of Chicago Press, 1996), 139-43. Doyle changed nothing about the chemical elements of the universe, just our ability to understand what was already there. Thus, Doyle initiated an invisible revolution via a reformulation of theory rather than an observation of anomaly.

potential increases where a concept becomes reality by simultaneously altering our perception of what is real and possible at the same time. We can also observe this dynamic in big events like going to the moon.

The US went from the Wright Flyer to a man on the moon in 66 years. If the decision to go to the moon had begun with detailed feasibility research for COAs, would realism have resulted in the message, 'Boss, it can't be done'? President Kennedy raised the idea potential way up and it *became* reality even when it didn't seem realistic scientifically (in the time allowed). If we are not creative at a theory level like this, how many brilliant future pictures pass us by as unrealized strategies because we think they are unrealistic?

Getting Beyond Problem Solving

This point pertains to creativity in the future picture stage. When you survey the stages in the synthesis it becomes clear that strategizing is not limited to problem solving and problem framing. Basic problem solving involves defining a problem, generating solutions, picking a solution, and implementing a solution. The central distinguishing feature is that these purposeful activity models demand *theorizing* rather than just blindly applying accepted theory. Apprehending the environment frame, creating a future picture, forming a theory of action, and crafting strategic elements all involve theorizing in a way standard problem solving does not. This is not to say strategies are never aimed at problems.

When President Roosevelt received news of Pearl Harbor, it surely felt like a tragic problem. When Russian missiles were pointing at the USA from Cuba, President Kennedy probably felt like he had a problem on his hands. When President Bush's sit-in with school children was interrupted with news we were under attack, he noticed he had a problem.

In other cases, when there is any amount of time to reflect without the imminence of decisions looming over leaders, it is possible to see *opportunities*. Also, strategists may proactively initiate strategy when there is *no problem at all*. Thus, unshackling the future picture from the limits of the problem opens a strategist up to other possibilities for crafting ends without altering the sacredness of ends from higher authority. It is

important for AOs to break the Friday deadline cycle to think proactively and creatively about future pictures within their spheres of influence.

Conclusion

To every man there comes in his lifetime that special moment when he is figuratively tapped on the shoulder to do a special thing unique to him and fitted to his talents. What a tragedy if that moment finds him unprepared or unqualified for the work which would be his finest hour.

Winston Churchill

Observations

Our national security challenges led me to research how we can improve our strategic creativity. Creativity in strategy can be a vague subject to educate strategists and is normally resigned to genius or operational art. I've attempted to make this subject more concrete by 1) bounding and clarifying relevant theory, and 2) tracing it through the everyday purposeful activity models across some professions. These models often serve as our de facto strategy development methods and thus serve as the practical context within which strategic creativity can take place. The range of these various models may also be a better match for the full range of tasks levied on our strategy action officers DoD wide. Studying theory and the models is just one way to make the study of strategic creativity more concrete to meet our national security challenges as viewed through three lenses.

Through lens one of our national current view, it appears we are still searching for a reliable strategic method in light of the 9/11 wars. Through lens two of our national future view, it appears we will need more creativity in ways as our ends expand while our means decrease relative to the world. Through lens three on the education of our AOs, it is unclear if we have a source for immersing them in strategy development methods for work in strategy shops around the DoD. In light of these challenges, the following

observations lead me to conclude our current methods seem weak in the very areas most needed to meet our challenge as viewed through all three lenses.

Ways. From the theory section, 'ways' is a surprisingly young part of our *express* ends-ways-means triad for making strategy. This may be due to an equation of reasons not explored in this research such as the difference in eastern and western rationality.[1] But the youth of 'ways' in our express theory may be a contributing factor to a much broader set of variables that force a means-centered strategic culture in the US. This can change if we so chose.

Strategizing. A second corollary from the theory section is the possibility of defining strategizing across levels of organization. Current military norms enforce the view that strategizing only happens where Strategy takes place. In the theory section I showed how crafting creative ways in large enterprises does not need to be anchored to the strategic level of war or organization. In the model section, I attempted to look comprehensively at purposeful activity models, believing that their general commonality also supports a broader view of strategy development. This is a contentious issue.

Yet the sooner we acknowledge strategizing as a discrete ability independent of level in organization, the sooner our members can knowingly strategize at lower levels in preparation for the day history taps them on the shoulder for higher levels of Strategy. As Kenichi Ohmae noted in *The Mind of the Strategist*, "although there is no secret formula for inventing a successful strategy, there are some specific concepts and approaches that can help anyone develop the kind of mentality that comes up with

[1] Francois Jullien, *A Treatise on Efficacy: Between Western and Chinese Thinking*, trans. Janet Lloyd (Honolulu: University of Hawai'i Press, 1996 (translated 2004)).

superior strategic ideas."[2] Accepting a broader meaning of strategizing in theory allows us to shift our strategic culture toward possessing the kind of mentality that comes up with superior strategic ideas at all levels of organization in training for higher ones.

Theory of action. The primary stage for unfettered crafting of creative ways is tailoring a theory of action, yet such theorizing is an under-developed theme in our strategic methods. This can be seen in six ways. First, the various discussions on theories of action range from Drucker to Wass de Czega but they were un-gathered. I've attempted to gather up the current theory and add some clarity to its place with examples and models.

Second, theorizing before strategizing goes back at least to Clausewitz. He was quite clear on the subject of tailoring theory per era. Yet I found no re-arranging of his propositions to make the case that tailoring *theory* itself is a fundamental part of *strategizing*. The absence of this point in our doctrine and literature is another small sign of under-development.

Third, the theory of action stage is expressly absent from our doctrine with the exception of an interim Army field manual from 2009. Parallels may certainly be drawn to related topics in military design but their one-for-one exchange is currently ambiguous.

Fourth, the theory of action stage takes shape in more than one profession. This further indicates its fundamental nature to purposeful activity models such as those used for strategy development. At the same time, in this one synthesis there appears to be gaps in this stage across the professions; this could show under-development or the need for further analysis to understand why.

[2] Ohmae, *The Mind of the Strategist*, 5.

Fifth, real-world military *examples* for theories of action by that name were scant minus one enlightening set in an ARCENT lessons learned draft. I have attempted to add other contemporary examples ranging from Europe First, Instant Thunder theory, Lines and Slices, and the Afghan Model. These were the tailored theories upon which the corresponding strategies turned and worked.

Sixth, tailoring theory has two main parts: the *process* of tailoring theory and selecting the conceptual *content* we use for doing so. Both parts demand an incisive mixture of transferring concepts and creating new ones. While this may sound like a truism, the connection between this proposition and the work of tailoring theory is under-developed in our doctrine and literature.

Strategic elements. Crafting elements of a comprehensive strategy may be the most recognizable part of strategizing, yet this essential stage has many unsorted or competing terms! The competing concepts were summarized as developing the sub-elements of a comprehensive strategy. This stage has been described variously as developing key descriptors of system change, key strategic factors, stratagems, conditions, etc. These all convey the idea of action concepts that together will transform the situation toward the desired end or system. Summarizing the meaning of the various terms is not nearly as significant as identifying this as a distinct stage for shaping ways in a strategy.

Strategic Content Pattern Language. Our current doctrine either resigns creativity in strategy to genius and operational art or limits it to a list of elements in operational design. On the other hand, the vast library of concepts embedded in general strategic theory could be viewed as the "pattern language" for creative applications to

strategy in our profession. Thucydides' fear, honor, and interest triad was used as one example of these patterns that can be transferred and mixed with new concepts in accord with the transfer value and change proposition. By viewing the source of our strategic content more broadly as in *all* concepts in the pattern language of strategy, we could keep with Wylie's picture of creating the "widest possible field" for our intellects.

Idea deltas. We can envision a theoretical range of idea potentials across three key creativity stages in strategy development. These three stages in the synthesis—future picture, theory of action, strategic elements—provide maximum opportunity for creativity to realistically shape our ways. Yet, there is always a tension between idealism and realism when applying creativity. Realism tends to drag the idea potential downward, creating an idea delta between what is and what could genuinely be. The opportunity cost of lower idea potentials may be undiscovered-unrealized strategies that start the whole Mintzberg process from Chapter 1 in a better world. Going to the moon is just one example of how ideas can *become* reality by raising the idea potential without being panglossian. AOs who are consciousness of the idea delta may push through limiting factors toward higher idea potentials.

Getting beyond problems. Problem-centric thinking may curtail the role of creativity in developing future pictures. While the vast majority of wartime strategy is truly problem centered, peacetime strategy work has the luxury of more time to focus on opportunities, proactivity, condition shaping, and long-term continuing advantage. The sacredness of ends from higher levels may unintentionally promote a lack of imagination about the possible world around that end which can also be honored.

Strategy Model Synthesis. The synthesis of models could be a better match to the broad range of strategy work done by AOs across the DoD. These AOs work on a stunning range of subjects surrounding national security beyond crafting critical war strategies or campaign plans. By reaching out across the professions, the range of purposeful activity models gathered in Chapters 2 and 3 and synthesized in 4, may be a useful guide for methods that match the true nature of their everyday strategy work. It also may provide a quick reference guide to various models for further detailed study in times of need.

To conclude, if these observations are true as premises, I argue that the theory and model sections of this thesis both show our current strategy development methods are weak precisely in the key creativity stages and points where clarity is most needed based on our challenge. In review, *ways* are newer to our lexicon and variously defined. *Strategizing* has been locked to a certain level organization in our discourse. *Tailoring theories of action* is a fundamental stage for creativity in ways and yet is underdeveloped in our doctrine. *Strategic elements* of a comprehensive strategy were shown to have no less than seven different descriptions. Creativity has been resigned uncritically to the subject of genius, operational art or the limited number of elements in operational design rather than the *vast "pattern language"* of general strategic theory. *Problem-centered* de facto strategy development methods could limit creativity in some cases. And *the synthesis* of models begs the question if we have given our AOs the kind of framework for developing strategy that matches the full range of their strategy tasks.

A Way Forward

Educating Strategic Creativity. Sometimes we call things hard if we do not do them well when actually we do not know how to do them. Strategic creativity seems to be this kind of black-box subject in strategy. Even as we have learned a great deal about the abstract concept of intuition in the last century, so too we may advance the abstract concept of strategic creativity.

I conjecture that the stages of future pictures, theories of action, and strategic elements may be intruding upon what naturally happens in the mind of genius. If so, these stages could give structure to the same for those who simply seek to be talented at strategizing. The focused theory and the purposeful activity models can make the abstract subject of creativity more concrete. So too the main creativity stages in the Chapter 4 synthesis may make the abstract subject of genius for intended strategy a little more concrete for educational purposes.

If we are intruding upon what happens naturally in the mind of military genius, these stages can be come an object of study for those seeking to be talented in the absence of genius, thus following the spirit of Ohame's quote about training for great ideas. In addition to theory and the models, I hope to add three subjects in hopes of supporting strategic creativity education: detailed historical studies focused on creativity in battle; interviews with living geniuses of strategy; and synthesizing practical aids to creativity from across the disciplines.

National emphasis. We have an emphasis on means over ways by design. This can be seen by the gross inequality between the systems that innovate our *national means* and the system that innovates our *national ways*. Inside the beltway, it becomes self-

evident that the system to create our means is grossly disproportionate in size to our system that creates our ways. Our *national means system* transcends description but involves an acquisition/contracting empire, gigantic swings of the Planning, Program, and Budget System (PPBS), congressional rivalries and interest, for-profit industrial monoliths, their oceanic waves of lobbyists, and competition of initiatives among branches of military service.

Yet when we look at our *national ways system* we have offices like Net Assessment (OSD/NA), sporadic university and think tank contributions that make a difference, un-confederated military strategy cells, JAWS, MAWS, SAASS, SAMS, SAWS, most weapon school mindsets when they age, and a few units devoted to producing new books of doctrine.[3] Thus, our vast over-weighting toward *creative means* is self-evident when compared to the infinitely smaller system devoted to institutionalizing our *creative ways*. So, we can compensate for declining financial support for military means by funding our national ways system; but the opposite is happening.

To move into an era of long term declining means and expanding ends, *we should adapt and shift resources* to our national ways system. The cost of means and ways need not be proportional dollar for dollar and there is obviously nothing wrong with better means! Yet spending should reflect intelligent design by honoring the national equation of expanding ends and declining means in an era of globalized complexity. As one instrument of national power, DoD will ultimately win our wars by ideas. We cannot kill our way out of most problems. Even when we can, our success is based on ideas of *why*

[3] There are great minds all through the DoD and creative ways may also come from many other sources like professional military education schools, great leaders, etc. This list focuses on sources of *institutional devotion* to generating creative ways and thus '*the system*' for doing so consistently.

that will work. Thus, the system that produces our national ways must catch up with the emphasis on our national means to compensate for the decrease in our national ability to support means-centric strategies throughout the 21st century and beyond.

New dissuasion. In the past half-century many of our military strategies have been based on expensive technological resources. Since our resources were superior to those of most potential enemies, our strategic culture also drifted toward means-dominance. The destruction of the World Trade Center showed us that we might have built our house on sand if determined enemies will simply avoid our strengths. Our enemies are strategizing outside of predictable paradigms. We must do so as well.

Our resources are declining and may continue to do so but this does not mean that our ways must decline. We can be more creative to shock aggressors with our minds and ways more than our things and means. Routine creativity in ways can lead to effective strategies that will bring just and creative theories of action to life even in an age of long term declining budgets. Our enemies must know that, whatever budgets are passed by Congress or debt is chosen by our leaders, they will face a martial core capable of producing ways-dominant strategies that will be beyond anything they could counter or even imagine in their paradigm-laden minds. No one is invincible. There is always a way. And when enemies fear our ways more than our means, we will know that our strategic culture has become the new dissuasion.

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